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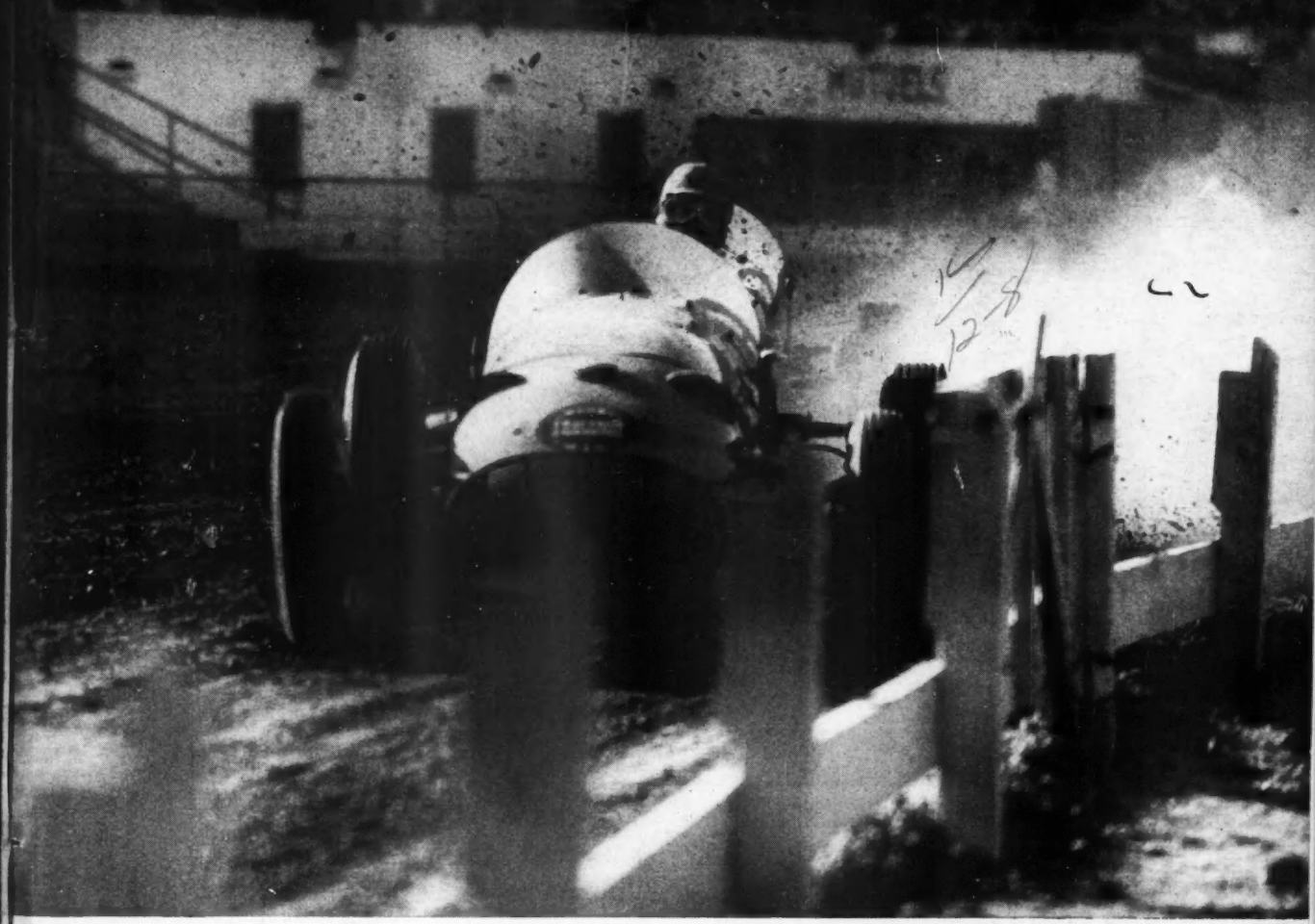
The Magazine for a Motoring World



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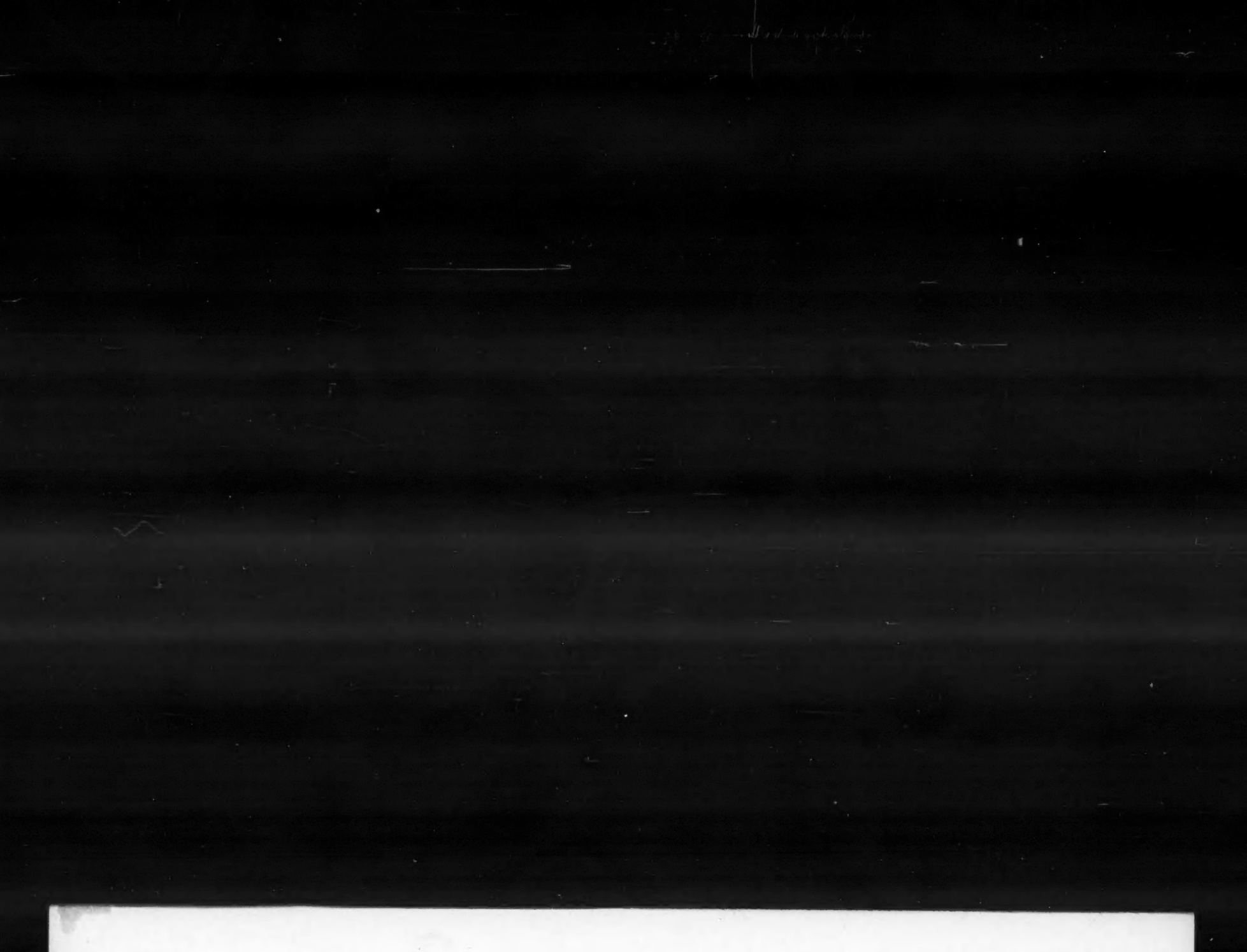

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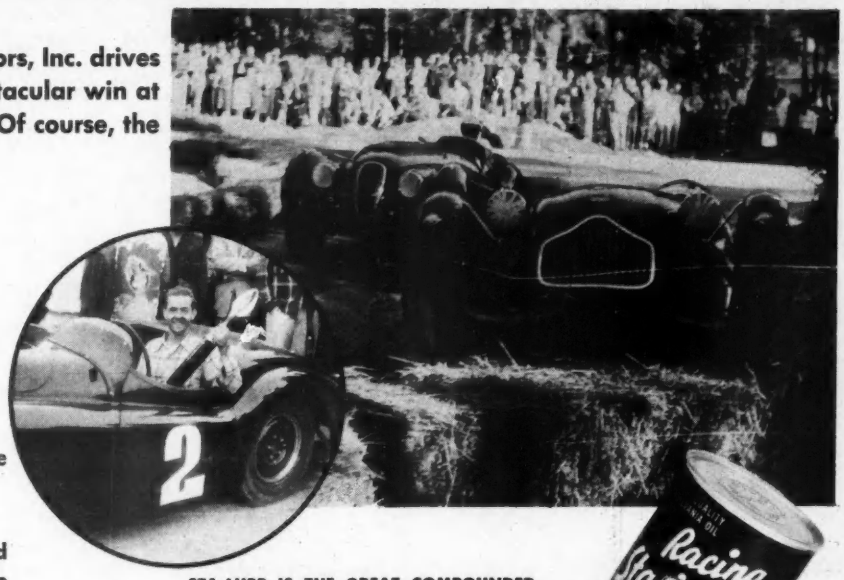

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MOTOR Trend

The Magazine for a Motoring World

JANUARY 1951 PUBLISHED MONTHLY VOL. 3 • NO. 1

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IN MEMORIAM

WE LOST a friend, and the world lost the services of a great man when W. C. (Bud) Winfield passed away recently.

Bud was as ardent a race fan as there ever was, contributing as much, if not more, to racing than any other individual. No greater tribute could be paid to Bud than to say that he made more friends in the racing fraternity than any other man.

The Novi Governor Specials, probably the most fabulous race cars ever produced in the U.S., were kept in perfect running condition by Bud at his La Cañada home. Along with Lou Welch, co-owner of the Winfield Engineering Corporation, he got the Novis ready for Indianapolis time after time, but always seemed to run out of luck just when he needed it most.

Bud is survived by his wife, Irene, his two sons, Edward (four), William C., Jr. (one), and his brother, Ed.

Bud Winfield, Rex Mays—a late, great team

YOUR EDITOR SAYS . . .

THE QUESTION of what the future holds in store for us is one that we all would like to have the answer to, and particularly so in these days of increased tension, rising military production, wartime curbs and credit controls.

It isn't easy to predict how our personal lives will be affected, much less foresee what the world situation of tomorrow will be. Yet, it is not hard to venture an opinion that automotive research will have as strong an effect on our civilization as did the telephone, radio and/or television. However, restrictions, such as the recent curb on automobile installment buying, will be certain to have a deterring effect.

It is not as if a restriction were being put on a lesser industry—the automotive industry is responsible for 1/5 of all retail trade in the United States and employs, directly or indirectly, one out of seven people. The Federal Reserve Board's action in reducing the time payment limit from 21 months to 15 months came without warning and with no apparent prior consultation or study of the effects of the 21-month restriction.

Some sources are predicting serious results to the over-all economy of the country, pointing to the large lay-offs being necessary as a result of business drop-off due primarily to credit curbs. Other sources are predicting that new and used-car dealer business failures will rise to as high as 75 per cent. We don't go along with this, however, for we are certain that the Federal Reserve Board and Congress will revise these restrictions before they are allowed to have such a far-reaching effect. Even as we go to press a Congressional committee is hearing witnesses from the automobile industry, dealers, and finance firms on the new ruling.

The unfortunate part of the credit curb, as we see it, is that it is working a hardship on those who can least afford to have a hardship worked on them—people who cannot pay cash and those who will find it impossible to pay $100 per month or more for a new or used car. If the automobile was more of a luxury than a necessity, this new curb on inflation would be more logical. As it is, it has its greatest effect on workers who either need their cars for transportation or require it in pursuit of their occupation.

Development and tooling is now proceeding on 1952 models, said to be the most extensive in the industry's history from a design and engineering standpoint. Research is progressing rapidly on gas turbine and diesel engine propulsion, with even atomic power being considered. Gas turbines have been the subject of many engineering meetings; a gas turbine has been tested in a truck and will eventually find its way into cars. Diesel engines have been used successfully in trucks for years, but have not been applied to autos mainly because of the high initial cost, a problem that is being licked. Although there is probably not much possibility of atomic-powered automobiles in the near future, largely because of the extensive shielding necessary for passengers, the accelerated pace of atomic research is evident in the recent announcement by Standard Oil Co. of California: a new oil perfected by use of a revolutionary test method employing the use of radioactive piston rings and a Geiger counter to check the amount of wear on engine parts.

And so we don't feel that we're far off in predicting that automotive research will have an effect on us equal to that of the telephone, radio, and similar outstanding engineering developments. We look for a great automotive future—*with* or *without* credit curbs, but preferably without such unwarranted curbs as this latest one. —W.W.

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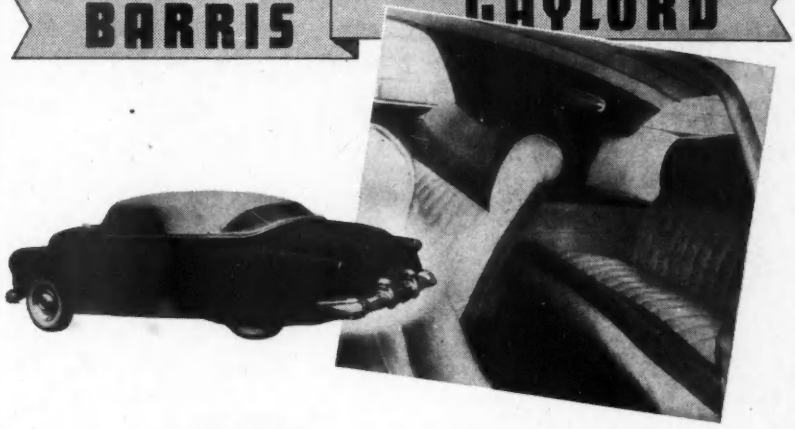

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Letters...

FROM OUR READERS

Letters published in this department are the opinions of the writers and are not to be construed as those of the editors. Address correspondence to: Letters From Our Readers, MOTOR TREND, 1015 So. La Cienega Boulevard, Los Angeles 35, California.

RETURN OF THE CLASSICS?

Gentlemen:

. . . I would like to know when and if you are ever going to go back to printing the very good type of articles with excellent photographs on "Classic Cars" (very fine and custom built American automobiles for 1925-1942) such as you had in the early issues of MOTOR TREND. I know of quite a lot of other people who are interested in these cars and who would like to see more written about them.

John VanCranebrock
Evanston, Illinois

—It isn't that we've been intentionally overlooking our classic car fans, but that lately we've had so many articles of timely and general import. Look for more of these classic car yarns soon.—Editor

★ ★ ★

MUNTZ ROAD JET

Gentlemen:

I am highly impressed with what Mr. Earl Muntz has done with the Kurtis Sports Car. He has made it almost practical to own one in the Road Jet version. Mr. Muntz, please do away with that impractical cloth covered metal top. Give the Road Jet a folding metal top similar to the "Playboy." It will then be practical to own one anywhere in the U.S. Lots of luck to the Muntz Car Company.

Russell P. Malone
Salisbury, Maryland

★ ★ ★

Gentlemen:

When comparing the "Muntz Road Jet" on page seven of the November issue, with the Kurtis Sports Car on page nine of the April issue, I found both cars have the same license number. Is it the same car?

Jack Worley
Spokane, Washington

—Sharp-eyed reader Worley is right on the license number (it was transferred to the new car).—Editor

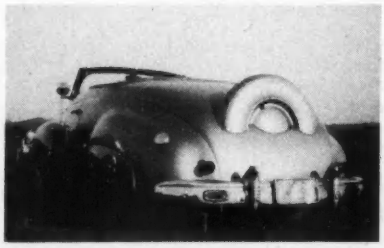
★ ★ ★

"EVEN IF I AM A GIRL"

Gentlemen:

I am sending these pictures of a custom '39 Mercury . . . customized by William Hill. I notice that Bill always seems so interested in MOTOR TREND that I looked through one. [I] decided that I would start reading them and learn something about cars since that is all Bill ever talks about. I enjoy reading MOTOR TREND even if I am a girl. . . .

Billie Jean Ramey
Cincinnati, Ohio



—Thanks, Billie, that's a new twist your boy friend has used on his car—mounting half a spare tire mount on his car to give it that "Continental Look."—Editor

VOLKSWAGEN AT WATKINS GLEN

Gentlemen:

At Watkins Glen last month [Sept.], I drove the only rear-engined air-cooled sports car in the race. It was, I believe, the first time a Volkswagen chassis has been used for competition in this country. I selected it because of its low cost, rugged construction, light weight, four wheel independent torsion bar suspension, and low center of gravity. Less than a month before the race, I started putting a two-seater F.I.A. rule body on the standard V.W. chassis.

Somehow, I arrived at Watkins Glen on race day, and had my car inspected and passed in time for the race, having driven it 700 miles from Chicago. Although I finished the race without mishap, the motor was badly out of adjustment due to last minute tuning, and a couple of MG's piled up in front of me on the first lap. However, the handling and cornering characteristics of the car were far beyond my expectations, and by next year I hope to have it in better shape.

Kurt Hildebrand
Chicago, Illinois

—We know you turned in a creditable performance and we'll be looking forward to seeing you there again next year.—Editor

★ ★ ★

DEPENDS ON THE VIEWPOINT

Gentlemen:

Your article on the Kaiser automobile was very interesting and I might add it was published at just the right time, for I had purchased a two door Special Sedan before picking up a copy of your publication.

Up till now I cannot find anything wrong with the car other than a few noises which will be taken care of at the 1000 mile check up. I will say this much—that the body construction is not as heavy as the last car I had. . . .

When sitting behind the wheel for the first time I was impressed by the large windshield and the lack of blind spots, this safety measure is worth its weight in gold. The brakes are very good and the motor seems to have a good bit of zip. There are many things which I think could be improved but I don't think there is a car on the road today that can be called perfect. . . .

Howard Scott
Palos Heights, Illinois

★ ★ ★

Gentlemen:

I have just read "Motor Trials—Kaiser" by Walter A. Woron in the October issue and wish to disagree with him on his statement that the Kaiser "is somewhat tiring to drive." The comfort one feels while driving . . . I would rate second only to its beauty and styling.

I picked up my car at Willow Run, then drove to the east coast and back, visiting museums along the way, and I have found it the most comfortable car I have ever owned or ridden in.

Bonnie C. Templeton
Los Angeles, Calif.

—Maybe we just tire easily—Editor

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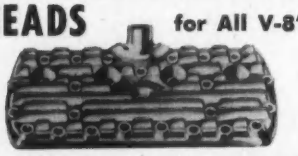

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ROAD RACE of the WEST

IN A THRILLING climax to a hard-fought battle against tough competition, Phil Hill maneuvered his clutchless Jaguar XK-120 through swirling fog and picturesque pines to victory in the 25-lap Pebble Beach Cup of the First Annual Pebble Beach Road Race. On a 1.8-mile course laid out on asphalt and dirt roads on the Monterey Peninsula, Hill showed superior driving skill: he drove the entire race with a burned-out clutch, his car was push-started, and he had to shift gears merely by feel. Winning with such a handicap is indeed commendable.

The Pebble Beach Road Race was the third such event conducted by the same group of officials (San Francisco Region of SCCA and MG Car Club) and their experience as a team really told. Intentionally, advance publicity was limited—an audience was desired rather than a crowd. Nevertheless, over 8,000 people were on hand to witness the day's sport.

Drivers' gripes, however, centered around crowd control, inherently imperfect at best. A good 50 per cent of the drivers objected to the dirt surface of a large portion of the course (Drake Road, see map), but these were men without previous racing experience on dirt. Drivers of the larger cars would have preferred a longer circuit, will probably get it next year. A trophy for sportsmanship went to MG-TC pilot Stan Mullin, who rammed the hay bales at 70 mph, rather than jeopardize spectators or other cars.

Michael Graham, a visiting English driver, made the *five* fastest times of the day in his very superior Cad-Allard, hit about 120 mph on the short straightaway (Portola Road). Bill Breeze, in a Jaguar XK-120, pushed his mount to 110 on the straight.

Spectators had a glorious day, and local residents—whose qualms had caused banning of the original four-mile course—seemed to place a unanimous blessing on future events. John B. Morse, President of the Del Monte Properties Company, was thoroughly pleased with his first Pebble Beach Race, says that his organization, famous for support of great golf, tennis, polo matches, will continue its strong support of road racing. The Company, the SCCA, and the MG Car Club cannot be praised too highly for their competent handling of their first large-scale event.

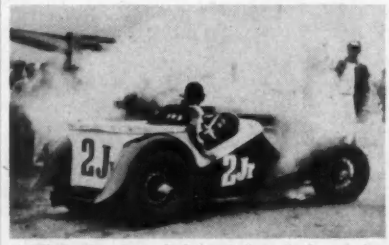
RESULTS

Cypress Point Light Car Race (12 laps, 21.6 miles, for 750 cc to 1500 cc) 1. Bill Kerrigan (MG-TC) 2. Neal Allen (MG-TC). 3. Henry Manney III (Crosley Hotshot, blown) Time: 21.37.40. Ave. speed—60 mph. Von Neumann (MG-TD) started close up, overtook Allen early in race, his lead never contested, and drove a heady race. He was disqualified, however, for running special fuel. Kerrigan's TC has 8.6:1 c.r., Nordell carbs and 16-in. wheels. Allen's TC has 10:1 c.r., oversize valves, competition carbs, magneto, oversize Ford hydraulic brakes (permitting faster approaches into turns).

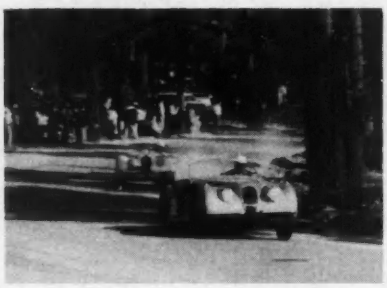
Del Monte Trophy (12 laps, 21.6 miles, for 1500 cc to 3000 cc)—1. Sterling Edwards (Edwards Sports Car) 2. Dick Scott (MG-TC, blown) 3. Joe Esherick (Frazer-Nash BMW). Time, :21.09.40. Ave. speed—60.7 mph. Edwards started in third spot, was in first by end of first lap, stroked to easy win. Early competition, Jack Armstrong (MG-TC blown) faded, and Scott (TC) overtook Esherick on last lap. Frazer-Nash handled well in corners. Edwards car has tubular steel chassis, independent suspension, Ford V8-60 full-race engine. Scott's TC runs IT blower, oversize valves, dual carbs and mag. Esherick's Frazer-Nash uses German BMW six-cyl., 1970 cc engine.

Monterey Unlimited Class Race (12 laps, 21.6 miles, for 3000 cc to 8000 cc) 1. Michael Graham (Cad-Allard) 2. Phil Hill (Jag XK-120) 3. Don Parkinson (Jag XK-120) Time, :20.49.80. Ave. speed 62.7 mph. Graham's Allard J-2 ran faultlessly, his only competition being Hill's XK. Cad-Allard seemed to rocket through straights and corners. Graham and Hill started side by side in second row and on first lap, Graham was out front, Hill moving up to second on fourth lap. Allard finished yards ahead. Allard ('51 model) runs super-tuned Cad engine. Hill's Jag running slightly overbore engine with semi-race cams, 10:1 c.r., 600 lbs. less weight to improve cornering. Parkinson's Jag running stock 3½-litre engine, no modifications.

Pebble Beach Cup (25 laps, 45 miles, open to first four finishers of each previous race). 1. Phil Hill (Jag XK-120) 2. Don Parkinson (Jag XK-120) 3. Jim Seely (Cannon Sports Car). Time, :44.08.80. Ave. speed, 61.4 mph. Stubbs (MG-V8) moved past MG-TC's, MG-TD's, blown Crosley Hotshot, and Edwards car from well back to take lead on first lap. Held comfortable lead over two winning Jags until 8th lap, then retired with water-pump trouble. Big displacement cars (Hill's Jag, Parkinson's Jag, and Graham's Allard) moved up quick. Graham retired on 6th lap with broken fan belt, lost three laps, then poured it on, being consistently clocked at around 11 secs. faster than the leaders, finished fourth. Hill moved into lead on 11th lap, held it easily although Allard seemed to have more in straights and might have provided interesting finish had laps not run out. Parkinson (Jag) and Seely (Cannon) drove steady pace, slowly moving up to second and third respectively, on lap 17. Other finishers: Joe Esherick (Frazer-Nash BMW), Dick Scott (MG-TC, blown), John von Neumann (MG-TD), E. Forbes-Robinson (MG-TD), Art Olinger (MG-TC), Bill Kerrigan (MG-TC), H. Manney III (Crosley Hotshot, blown) and Arnold Stubbs (MG-TC, V8-60).



ABOVE—No. 2 Jr. led for 8 laps before it became a gushing geyser of hot water and steam

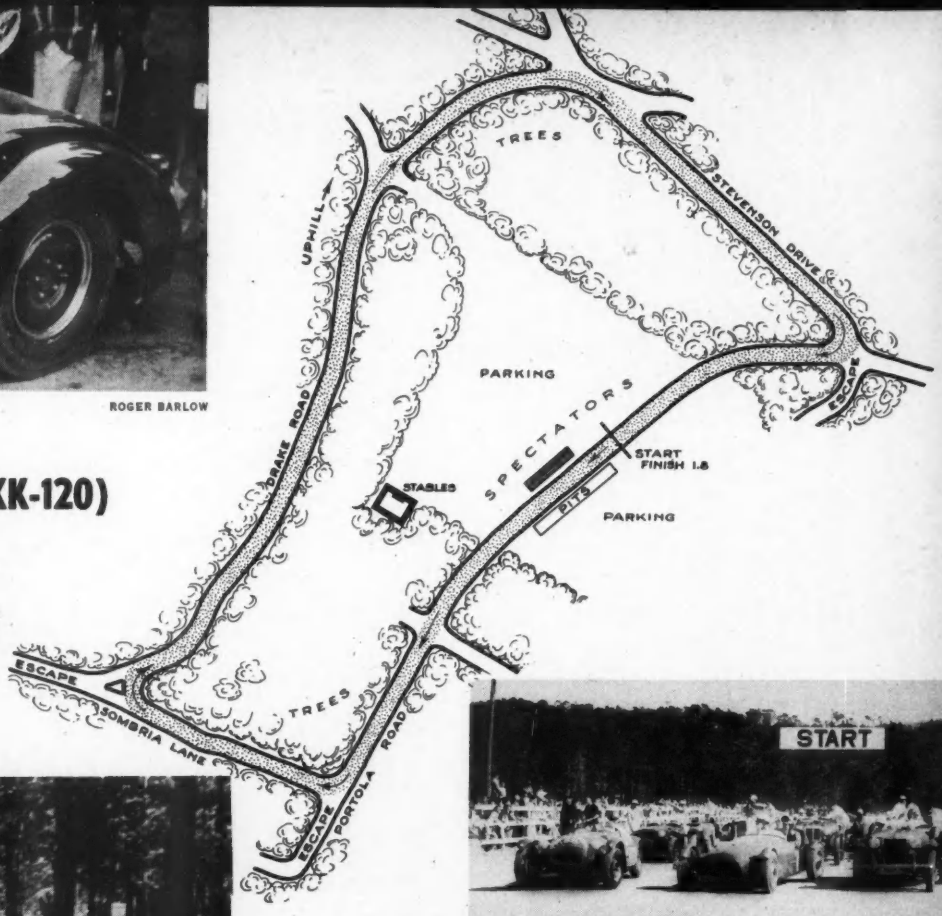


ABOVE—Dor Bingle (Crosby) and one of twins were interested spectators at Pebble Beach Race

LEFT—Second place car (Jaguar) leads another Jag XK-120 through sweeping turn into straight

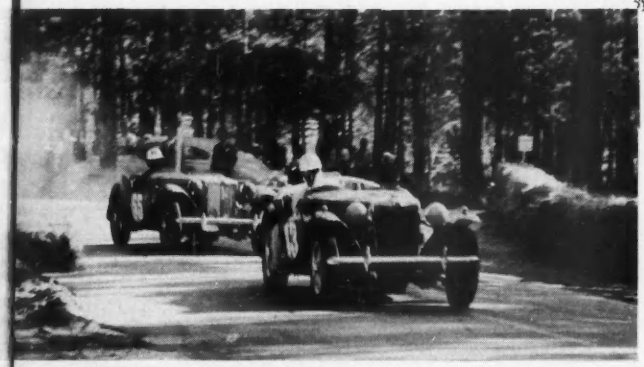
ROGER BARLOW

PHIL HILL (JAGUAR XK-120) WINS FIRST ANNUAL PEBBLE BEACH EVENT



PHOTOGRAPHS BY THOMAS J. MEDLEY AND GRIFFITH BORGESON

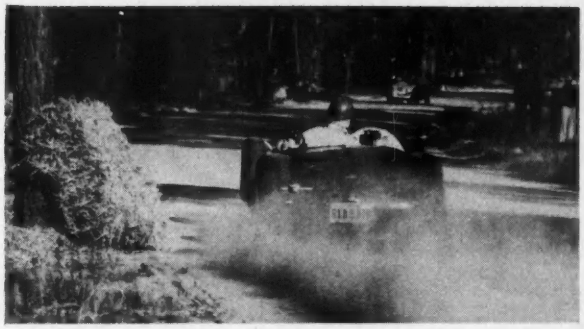
ABOVE—The field gets ready for the Monterey Unlimited Class Race. Cannon car in center



ABOVE—Two MG's round the sharp right turn from Portola Road into Sombria Lane. On Portola Road very high speeds were possible

ABOVE—First time for Bill Breeze in XK-120, seen rounding chicane

ABOVE—Sterling Edwards took Del Monte Trophy Race with ease



RIGHT—Mike Graham (Allard J-2) in a controlled slide on dirt

MOTOR TRIALS

Ford with Fordomatic is a top performer

by Walter A. Woron

PHOTOS BY THOMAS J. MEDLEY

IF YOU'RE familiar with the power and acceleration of Ford products, you were probably as credulous as I was by the announcement that the Ford automatic transmission was to be used on cars without increasing the engine power output. You no doubt thought, "The '51 Ford can't possibly go as good now as it *did*." If you're of this belief, then you're in for a surprise. And if you're not a "leadfoot" now, you probably will be after driving the Fordomatic.

The test of the '51 Ford was necessarily shrouded in secrecy: only our research staff and the Ford Motor Company was aware it was taking place. Since the '51 Fords had not yet had their first public showing in dealers' windows, it was necessary (at the Ford Motor Company's Long Beach plant) to do a thorough job with paper and masking tape to hide the car's identity. Considerable co-operation was necessary for the motor trials to be run off smoothly.

Fortunately, even though the car was practically new, it had sufficient mileage on it for an exhaustive test because it had been used for test purposes by the company.

LEAVING the Ford Motor Co. plant in Long Beach, Calif., for the secrative road test, the '51 Ford can be distinguished by its general lines, but changes are not visible due to the masking job

Detailed Test Report

TRANSMISSION: In the opinion of your editor and your technical editor, Don Francisco, the Fordomatic transmission is the best automatic transmission we have tested to date. Although we both prefer conventional gearshifts (because we believe you can better use maximum engine efficiency in this manner) we both made the comment that if automatics continue to improve as they have, they'll eventually win us over. The Fordomatic has a smooth shift (having only one shift in DRIVE) and the engine does not rev up excessively before the car begins to move. For normal acceleration, engine rpm gradually builds up to around 1400 rpm, and shifts to third gear (in DRIVE) around 2000 rpm. In DRIVE range, with only the one shift up or down, the shifting does not wear on your nerves. DRIVE range is used for most conditions (traffic, cruising, easy grades, etc.); it has two ratios, intermediate and high. Intermediate (automatic) is used for hard pulls (shifts itself at 20 mph), normal acceleration (automatic), and added acceleration (additional throttle pressure for shift). LOW has one ratio for acceleration (see "Acceleration"), two for deceleration (in a hand shift to LOW, transmission goes to intermediate, then into low ratio). We tested the car in sand and found that by rocking the car, using LOW and REVERSE, you can get out without trouble.

ACCELERATION: The acceleration of the '51 Ford with Fordomatic doesn't exactly pin you to your seat, but it has more-than-average speed up and down the scale. In a test against a '50 Ford with conventional transmission and 4.10:1 rear axle, the two cars stayed practically even for 0-60 mph and for standing start ¼-mile. The acceleration trials were made with Mobilgas Special and employed two different methods: using DRIVE range only, and starting in LOW and shifting to DRIVE at 40-42 mph (see Table of Performance). Out of curiosity, we made some runs directly against the speedometer and confirmed our belief: because of speedometer error, it is possible to get a reading from three to four seconds faster than the *actual* time. Our tests are made against a *calibrated electric speedometer*, correct to less than one-half of one per cent at 100 mph.

TOP SPEED: There is a slight amount of wind wander with the '51 Ford at very high speeds, but not enough for you to have to apply constant correction. The top speed of the particular Ford tested was slightly higher (about two mph) than a '50 Ford tested recently for top speed. A major improvement is the elimination of driveshaft "throb," arrived at by raising the rear of the engine 1½ ins. so that the U-joint operates at 1½-2 degrees, instead of 4-6 degrees.

FUEL CONSUMPTION: Although fuel consumption averages obtained with the '51 Fordomatic were not quite as good as those on a 1950 Ford V-8 test car, the overall average (not counting acceleration and top speed runs) was still quite high—18.28 mpg. The consumption increases slightly in heavy traffic and at high speeds (see Table of Performance), as with all automatics.

BEHIND THE WHEEL: One major improvement has been made in regard to the '51 Ford front seat. As the seat is adjusted fore-and-aft, the seatback pivots at the lower end, bringing the top closer to your shoulders or moves it away, as the case may be. One common complaint that is still evident, however, is that the right side of the seat doesn't hold well in its track. Vision is good in all directions, although the left windshield post could be moved back further to provide better vision. With the new instrument panel controls are as easy, or easier, to reach than before. The panel boasts safety features in the recessed knobs (individually lighted) and a speedometer pointer with a glowing ring that encircles the numerals to emphasize your speed. Legroom and headroom is good in both seats, unless you're more-than-average size.

STEERING: When it comes to controllability of new cars, the Ford is hard to beat. On long, open stretches, or over curving, climbing grades, the car is extremely easy to handle. Body sway is at a minimum; one corner taken at around 80 mph proved this point to me. There is a slight amount of road shock going over sharp dips and railroad tracks, but never enough to be perturbing.

RIDE: Whether you're behind the wheel, or riding as a passenger, you're generally comfortable in the Ford. The only slight objection in this category would be the amount of wind noise (with windwings open) above 60 mph, which makes conversation a little difficult without raising your voice. Although the ride is somewhat "softer," it hasn't appreciably affected control. Reason for the changed ride: a control valve in the tubular shock absorbers (to adjust the cushioning effect), a tension-type rear spring suspension and a softer front spring rate.

A WOMAN'S VIEWPOINT: When I turned the car over to my wife to drive, she

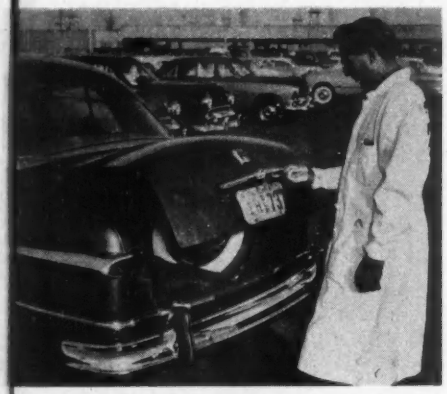
AFTER reaching a secluded spot along the coast, we took this and other photos showing changes

had these remarks to say: "This is the lazy way to drive. I'd like to take off on a trip right now." (We did, about 20 miles.) "It's so relaxing to drive and the seat is just about perfect—it supports your back so well. Looks certainly isn't everything, but I'd say the '51 Ford is better-than-average in this department. Features that I particularly like about this car are the changed grille, the new dashboard, the upholstery, the easy-lift trunk lid and the way the car handles."

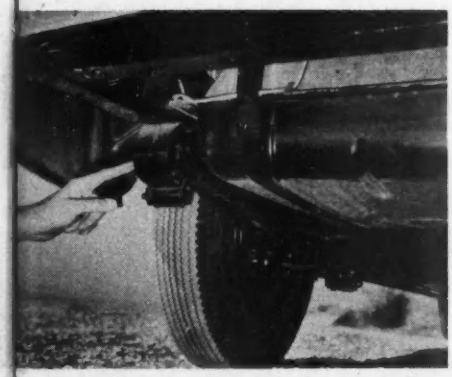
Appearance and Mechanics

My first impression of the '51 Ford, appearance-wise, was that it was too liberally sprinkled with chrome. (Much of the added chrome could have been deleted and would not have been missed, although manufacturers in the past have relied somewhat on chrome for identification change purposes; then, again, many persons like lots of chrome.) Basically, body styling is the same, with changes being the "two-spinner" grille, a lowered hood, restyled parking lights, larger chrome headlight rims and redesigned tail lights. Something on the '51 Ford which '49 and '50 Ford owners would appreciate having on their cars is the counter-balanced trunk lid, with springs to assist in raising and holding the lid in position. (It's now a "one-finger lift.") The chassis side rails have been additionally strengthened, being boxed in almost to the rear.

In some respects, the interior appointments of the '51 Ford are not quite up to the usual high Ford standards (evident in the substitution of leatherette with plastic in several instances and the use of a different head lining material), but in others there appears to be used even better materials (upholstery, for one) than previously. This could be an indication that wartime shortages in some lines are being felt more critically than the general public realizes.



MT EDITOR shows how easy it is to lift counter-balanced trunk lid by raising it with one finger



POINTING out the strap to which lower shackle is attached, and new method of rear springing

STABILITY of new Ford shown on hairpin curve. Although ride is "softer," controllability is good

Engine changes in the '51 Ford add to the overall efficiency, but have not increased the horsepower output. The changes are: addition of valve rotators, a chrome-flashed top compression ring, waterproof ignition system, and a larger capacity fuel pump.

Trend Trials Number

Last month MOTOR TREND inaugurated a system of rating cars which we believe will help a person decide between two cars that he may be considering for purchase. We term this system of rating, "Trend Trials Number," a figure arrived at through totaling the cost per bhp (how must it costs for the power of an automobile), the fuel cost per year (based on the overall fuel consumption average obtained on the Motor Trial) and the normal maintenance cost. For the purposes of standardization, normal maintenance is based on the same items for each car, the replacement and labor costs providing the variance (ref: *Motor's Flat Rate Manual*). The total cost is added up and then divided by 10 (to give an easier number to work with)—*the lower the number, the better the value.*

The 1951 Ford with Fordomatic has been given a Trend Trials No. 22.1, a more-than-satisfactory rating, considering the sales competition this car has in the $1450-1700 class.

In buying a new car, there are many points to consider; some of these are: its cost, its economy of operation, its all-around performance, its dependability, its lines (styling), its ease of maintenance, and its trade-in value. Since the '51 Ford can meet all of these qualifications with an above-par rating, we feel that it is a good buy. And for the person who prefers an automatic transmission, the Fordomatic is just about tops.

GENERAL SPECIFICATIONS

ENGINE

Type	L-head, in-line V-8
Bore and Stroke	3 3/16x3 3/4
Stroke/Bore Ratio	1.18:1
Cubic Inch Displacement	239.4
Maximum Bhp	100 @ 3600 rpm
Bhp/Cubic Inch	.418
Max. Torque (Bare Engine)	181 @ 2000 rpm
Compression Ratio	6.8:1

DRIVE SYSTEM

Transmission — Conventional three-speed; Ratios: Low—2.819:1, Second—1.604:1, Third—1:1, Overdrive—.7:1, Reverse—3.625:1 Fordomatic Ratios: Low—2.44:1, Intermediate—1.48:1, High—1:1, Reverse—2.0:1

Rear Axle—Semi-floating Hypoid; Ratios: 3.73:1 (Standard), 4.10:1 (Overdrive)*, 3.31:1 (Fordomatic)**

DIMENSIONS

Wheelbase	114 ins.
Overall Length	196 ft. 8 ins.
Overall Height	63 ft. 2 ins.
Overall Width	72 ft. 9 ins.
Road clearance	7.9 ins.
Tread (Front and Rear)	56 ins.
Turning Radius	20 1/2 ft.
Weight (Test Car)	3300 lbs.
Weight/Bhp Ratio	33:1
Weight/Road Hp Ratio	55.9:1
Weight Distribution (Front to Rear)	57.4/42.6%

* Optional equipment—$96.90
** Optional equipment—$160. (approx.)

TABLE OF PERFORMANCE

(For explanation of any figures or conditions in the following table, see copy under the particular heading.)

DYNAMOMETER TEST

1800 rpm (full load) 34 mph	44 road hp
2000 rpm (full load) 44.5 mph	48.5 road hp
2500 rpm (full load) 60 mph	58 road hp
2950 rpm (full load) 72 mph	59 road hp (max.)

ACCELERATION TRIALS (SECONDS)

Standing start ¼-mile	:21.89 (D)*; :21.19 (L-D)**
0-30 mph through gears	:06.54 (D); :05.45 (L)
0-60 mph through gears	:18.91 (D); :17.82 (L-D)
10-30 mph in high	:18.74 (D)
30-60 mph in high	:13.34 (D)

* Shift using DRIVE range only.
** Shift using LOW range, then shifting to DRIVE.

TOP SPEED (MPH)

Fastest one-way run	88.50
Average of four runs	87.25

DECELERATION TEST (SECONDS)

From 60 to 30 mph	:25.41
From 45 to 20 mph	:26.16
From 30 to 10 mph	:32.29

BRAKE CHECK

Stopping distance at 30 mph	35'3"
Stopping distance at 45 mph	92'0"
Stopping distance at 60 mph	182'3"

FUEL CONSUMPTION (MPG)

At a steady 30 mph	24.69
At a steady 45 mph	20.00
At a steady 60 mph	18.44
Through light traffic	19.75
Through medium traffic	15.63
Through heavy traffic	11.17

SPEEDOMETER CHECK

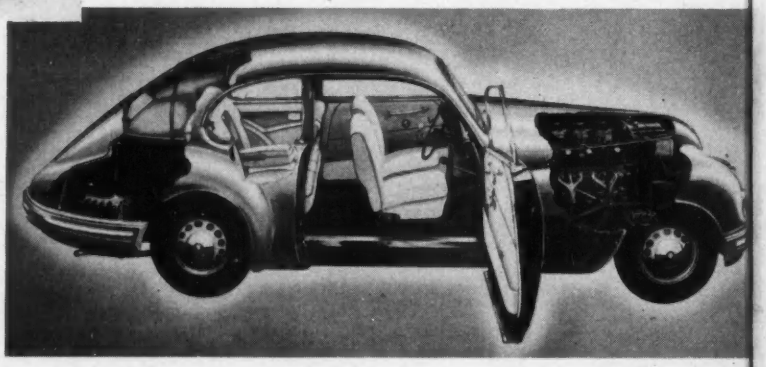
At 30 mph indicated 32 mph	6.6% error
At 45 mph indicated 49 mph	8.9% error
At 60 mph indicated 66 mph	10.0% error

ON EXHIBIT at the British Motor Show was this Daimler 2½-litre (above) "Special Sports" Drophead Coupe, with coachwork by Barker. Quality items include seats trimmed in leather, leather-covered sun visors, solid walnut polished woodwork and separate spare tire space below the trunk

FORD'S new Dagenham-built Zephyr Six (above) has an integral steel body, independent front suspension, hydraulic brakes and an ohv engine

BY COVERING 10,000 miles in 10,000 minutes at Montlhery, France, the Austin A40 Devon Saloon set up an enviable reputation. Now comes the Sports edition of this car, with a 73.17 cu. in., 4-cyl. engine of 46 bhp at 4400 rpm. Comp. ratio is 7.2:1. Performance should be good

CUTAWAY of the Bristol two-litre (below) shows tubular framework, spare wheel storage, carburetion and exhaust manifold set-up. New features include continuous-curve body side panels, pleated seat cushions, thermostatically controlled radiator and other minor improvements

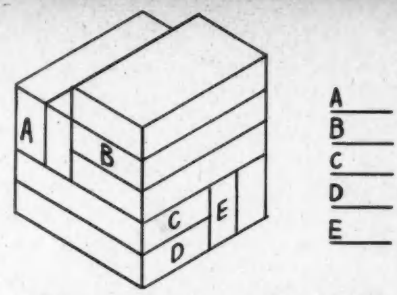


DESPITE the tenseness of the worldwide situation the Society of Motor Manufacturers and Traders predicts that the British automobile industry will set an all-time record, both production-wise and export-wise.

Sir William Welsh, North American representative of the SMMT has stated, ". . . there is a steady and growing demand for British motor cars in these markets (United States and Canada) . . . Now being shown . . . are new models with new and modern design and increased power . . . We are certain that they will be enthusiastically received . . . in markets throughout the world—and Great Britain still leads the world as an exporter of passenger automobiles." Some reasons for British optimism are shown here.

ARE YOU A SAFE DRIVER?

by Eugene A. Jaderquist



HERE is an example of one of the Ruch-Wilson Safe Driver tests—depth perception. Count the number of blocks (blank or lettered) that touch block A, then block B, etc., and write your answers in the space provided. Flat surfaces must be touching, not corners or edges. Answers on page 28. Don't look until you've tried it

STEVE WAS one of those drivers who works his passengers. Even his wife would emerge from a cross-town trip with a sore ankle from pressing hard against the floorboard, frantically trying to apply the brakes. Back-seat guests spent the journey squeezing the upholstered coat-hanger while they sat bolt upright in suspense and silently prayed or cursed. There would be an audible sigh of gratitude when a particularly deadly intersection had been safely negotiated—a whistle of relief as a bug-eyed pedestrian jumped clear.

This attitude toward his driving made Steve very angry. He would patiently explain that he was not a dangerous driver. All his accidents had been minor ones, little fender-wrinkling collisions that didn't even hurt the car, let alone the passengers. Nobody ever had to worry when old Steve was at the controls—he knew how to handle his baby.

In the normal course of events, Steve would never have discovered what was wrong with his driving. He would have continued to fight his car through situations he couldn't handle safely until he caught his big one—a collision where he or one of his passengers would be twisted into a bloody pretzel.

But Steve lost his job in the aircraft factory and applied for a driver's job at the Carnation Milk Company. His work record was good, he was young, handsome—the kind of employee Carnation likes to send on its route trucks, delivering milk and ice cream. They processed him and sent him to work.

On the first morning, before he was assigned to his truck, the supervisor sent him upstairs to take the tests. Steve was told that the result of the tests would not affect his job at present—as far as Carnation was concerned the Ruch-Wilson tests were still in the experimental stage and no man would be judged by his score until the tests had proved themselves. Steve laughed when he saw one of the tests. It was something like the one he had taken in the army in the reception center, a silly jumble of blocks that seemed to have no relation to any real-life situation.

At the beginning of the Ruch-Wilson tests, the personnel officer read the directions and told Steve to work quickly but accurately. There were seven sections of the examination, each one run against the stop-watch. Steve placed dots in the middle of O's, picked O's out of nests of Q's, traced lines through confusing jumbles of other lines, counted blocks, compared groups of figures, drew a continuous line through a series of small openings, filled out a biographical history of himself. Then he handed in the tests and went to work.

In the next six months Steve had three accidents, all very minor and only one of them chargeable to him. He brought in a report on his fourth after the seventh month. In a residential district, he had made a turn and backed into a Cadillac sedan, mangling one fishtail quite badly. On the report Steve said that it wasn't his fault—the Cadillac had been parked too far away from the curb.

And it was that day that Steve learned about his deadly shortcoming. The supervisor charged him for the accident by giving him 45 demerits and then pulled the Ruch-Wilson test out of the files and started to talk.

"You are not," he began, "a safe driver."

In the next hour, Steve learned a lot of things about himself. He had failed the seven rather silly tests because he was not able to ignore distracting details that had been purposely planted to confuse him. His work on the tests had been slow—slow enough to show that Steve needed time to make decisions about the things he saw. His eye-hand coordination was faulty—it took too much concentration for Steve to draw a line through a small gap in another line.

Translated to driving, this meant that Steve could not see danger quickly enough to avoid it, unless he drove slowly. Cars that other drivers could see and avoid easily would appear to Steve to loom up suddenly from nowhere. Pedestrians who would be seen stepping off the curb by a perceptive driver would seem to rise up from the pavement in front of Steve. That was why his passengers had always applied brakes for him, had always sweated out every tight traffic situation. In their eyes, Steve was deliberately running full speed into a deadly trap. In reality, Steve did not see the trap until a second later so he became angry at others for what seemed to him their over-apprehensiveness.

The company, of course, had no desire to correct Steve's private driving habits. But his accidents with company trucks were one of the reasons why the Carnation company pays 1½ cents a mile for accidents. Drivers like Steve are not rare. They make up about 25 per cent of the total number of drivers employed by the company. And the company is not unique. Until the advent of the Ruch-Wilson test, no way had been devised to separate these poor risks from the better-fitted drivers.

Floyd Ruch and Clark Wilson began work on their Safe-Driver Selection System in 1946, using the Los Angeles Transit Lines as the first experiment. Five hundred and thirty newly-hired bus and street-car operators were tested with a battery of 17 tests similar to the ones Steve took. It was during this first experiment that 10 of the tests were thrown out because they had no correlation with actual driver performance. But the results with the seven retained were so good that Ruch and Wilson were encouraged to repeat the experiment on officers of the Los Angeles Police Traffic Enforcement Detail. The results of this trial were brought to the attention of the Carnation company who were happy to lend their staff for further experiments. To date, 1500 cases have been carefully tested and checked and finally Ruch and Wilson are willing to predict the accident records of any group of men on the basis of test results.

This is the first time in the 40-year history of accident research that any test has been able to separate good from bad drivers with any statistical accuracy.

To companies like Carnation or the Los Angeles Transit Company, this can mean a 15 to 20 per cent reduction in accidents, or a saving of at least $25,000 annually. To the United States it can mean of saving of 5,000 lives annually.

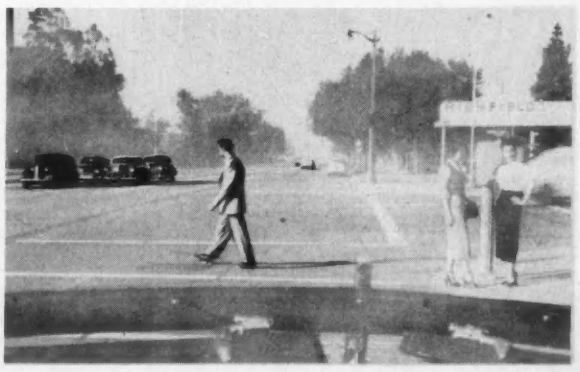
Floyd Ruch has been chairman of the psychology department at the University of Southern California since 1942. His book, *Psychology and Life*, is the standard text in

(*Continued on page twenty-eight*)

THIS IS a busy intersection as it appears to an easily distracted driver

THE SAME corner as it looks to a driver who pays attention to driving

FELIX ZELENKA

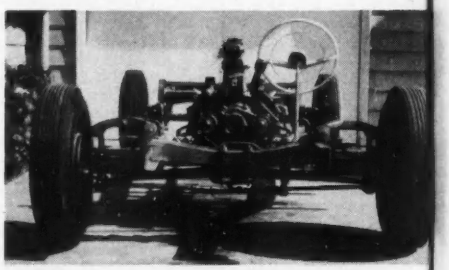


THE STORY ON THE STORY

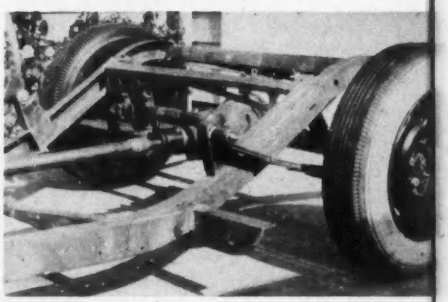
Text and Photographs by J. R. Fleming

AFTER three years on the drawing board the Story Sports Car has become a true story. The designer and builder, Tom Story, began construction in September, 1949, and by spending a large share of his free time on the car had completed it by October, 1950. The car had originally been built for the owner's personal use, but since then there has been some speculation that the car might be produced in limited quantities.

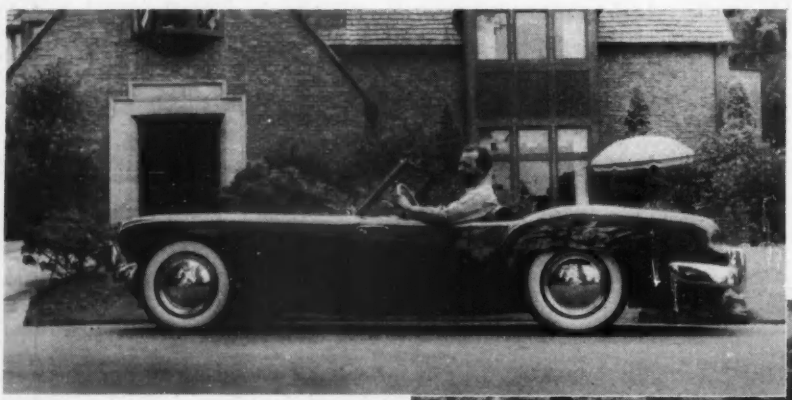
Contours of various cars were used whenever possible but almost complete reshaping was needed on most of the sections to achieve the unusually clean flowing lines. The body and frame are chrome moly tubing, with frame rails made of channel chrome moly, four inches deep. A convertible, removable top has been designed for the Story by Dubruille Top Company, Portland, who also fashioned the white and yellow plastic upholstery and the rugs for the floor. The emerald green paint was mixed by Western States Lacquer Corporation, California.



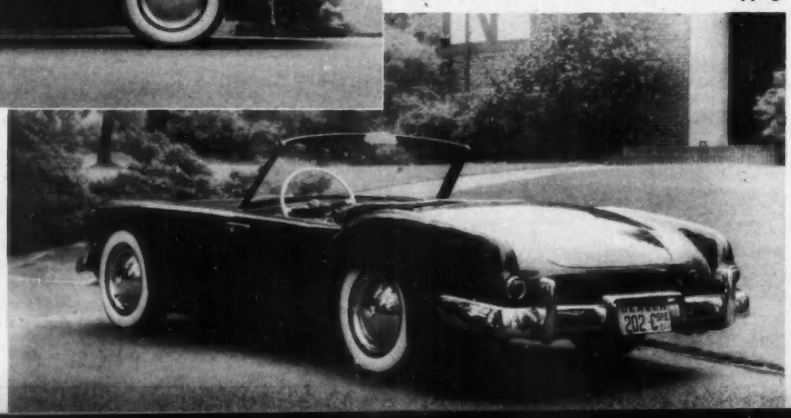
FRONT suspension is independent, uses transverse leaf spring. Shocks are tubular, brakes hydraulic. Engine boasts Super cam, dual intake manifold, and has been dynamically balanced



FRAME is stepped over Timken differential, ratio of 4.44:1. Will accelerate to 7250 rpm in second, 6500 in high, takes city corners at 3000 rpm and has no indication of wheel slippage



STEERING of the Story is quick, requires only 2¾ turns, lock to lock. Wheelbase—97 ins., tread—54 ins., total width—66 ins., total weight—2100 lbs., overall length—13 ft., 1 in.



TERRIFICALLY low (48 ins. total) and equipped for speed, using a hopped-up V8-60, built by Bill Schnell. Bored .080 in., ported, relieved, uses Offenhauser 10:1 heads. Dash of the sleek Story sports car includes usual instruments

THE WHAT, HOW AND WHY OF SUPERCHARGING

HARNESSED DYNAMITE!

by G. Thatcher Darwin

DRAWINGS BY N. R. RIGGS

ALTHOUGH the practice of supercharging has become commonplace, and we no longer regard the supercharger itself with that silent awe we once assumed in its presence, there still exists some misunderstanding as to precisely what it is, why it is used, and how it works. This lack of popular familiarity with supercharging probably reached its zenith in a classified ad we saw some time ago in which a small sports car was represented as having "excellent performance, being blown and also supercharged." At another time we overheard in the pits after a meet a not-so-knowledgeable but extremely audible fellow loudly holding forth on the "advantages" of a blower over a supercharger.

Probably a lot of the current misinformation is due to the fact that the term supercharging itself is not very appropriate to describe exactly what takes place.

Before going on, let's pause for a moment to consider the intake-compression-power-exhaust sequence of the four-stroke engine. Assuming that we understand these fundamental steps of the internal combustion cycle, let's focus on the first, the intake stroke. As the intake valve opens, atmospheric pressure outside the engine *pushes in* through the carburetor and intake manifold to fill the void created by the descending piston. This external push is the only impetus given to the charge. The entire combination of air filters, carburetor, intake manifold, and port route, as well as the opening valve itself, tends to impede or resist this cylinder charging push even after the inertia of the vapor in the manifold has been overcome. We must also realize that since the engine operates at higher temperatures, the charge is heated perceptibly as it passes into the cylinder. Therefore, when the intake valve closes at the end of the intake stroke, the cylinder is filled with vapor at a pressure lower than, and a temperature higher than that of the outside atmosphere.

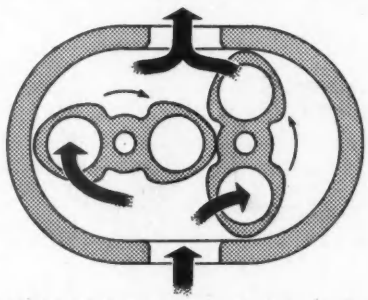
The ratio of weight of the charge in the cylinder to that of an identical volume in outside atmosphere is termed the *volumetric efficiency*. Normally this volumetric efficiency varies from 75 to 85 per cent. It is easy to understand how this figure decreases as engine revolutions per minute increase because of the inertia lag between the valve's opening and the movement of vapor into the cylinder. The process becomes still less efficient when operating at higher altitudes because the atmospheric pressure is reduced and the intake "push" is weaker.

When we realize that *power output for a given engine is directly proportional to the weight of air that is put through the engine per given time unit*, we can easily see that some means of assisting the atmospheric pressure charging becomes desirable. The supercharger then is merely a device for *forcing air through* the engine in greater weight than would be possible by using only atmospheric push. It is a pump or compressor, in fact the German term is "*kompressor*," while we Americans have adopted the term "blower."

As early as 1906 the American Chadwick car, an otherwise sober vehicle, used a primitive centrifugal blower and actually won a hill climb called the Great Despair, competing against more expensive rival machines. The Chadwick did not, however, enjoy a very widespread popularity and for several years, forced induction was largely ignored by engine designers. During the latter stages of World War I, experiments were undertaken on superchargers for aircraft as both sides sought to offset the very serious drop in hp on those early engines at high altitudes.

To Mercedes-Benz goes credit for the first use of superchargers in racing cars, the factory team appearing with blowers for the 1921 Coppa Florio Race. From that time on, superchargers were recognized as essential for highest output engines.

The effect of supercharging is simply increased horsepower, and bearing in mind our rule for power output stated above, the amount of increase is proportional to the weight of air that can be forced through the engine, i.e., proportional to the degree of supercharge. Naturally there is a law of diminishing returns at work here: increased hp is limited by certain practical considerations, such as bearing loading, engine cooling, fuel characteristics, and the amount of power required to drive the blower itself.



ROOTS-TYPE blower traps air between impellers and casing, and then forces it out

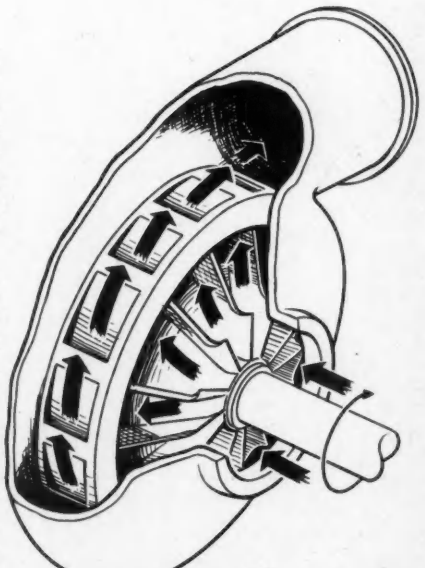
Within the supercharger's useful range an engine thus equipped gives faster acceleration, increased top speeds, better torque at low speeds and improved performance in mountain altitudes. As an illustration of the blower's effect, supercharged sports cars are commonly required to compete with cars of the next largest class of engine displacement. In international Grand Prix competition cars of 91 cu. in. displacement supercharged are ranged against cars of 270 cu. in. unsupercharged. The small blown engines usually win except under conditions particularly suited to the larger machines.

Superchargers themselves may be divided into two major categories: the centrifugal and positive displacement. The centrifugal blowers consist of an impeller fitted with a number of radially disposed vanes, rotating in a housing (see drawing). The fuel mixture enters the housing through a port at the center of the impeller. The whirling impeller forces the mixture outward along the vanes which are specially shaped to minimize frictional loss and to dampen the impact shocks of the mixture against the vanes. By the time the mixture reaches the extremities of the vanes its velocity has so increased that its pressure has been raised enormously. The compressed fuel vapor then passes between a series of stationary curved vanes designed to gradually slow down its velocity and finally the mixture exits from the blower through a port positioned at a tangent to the circumference of the housing.

This type of blower must operate at high rpm in order to sustain its output pressure and therefore it is usually geared at from six up to 14 times crankshaft speed. These ratios confer peripheral speeds of up to 1500 feet per second at the impeller tips. Although the impellers are light and therefore have low inertia, the loads on the blower drive mechanism under acceleration and deceleration are very considerable.

Because of this, centrifugal blowers are best suited to engines operating at fairly constant speeds. Although they are not considered ideal for automotive use, they are less expensive to construct than some other types. Probably because of this they have been fitted with some success to various American passenger cars such as Graham, Auburn and Cord. The eight-cyl. Graham

(*Continued on page thirty-one*)



IN A centrifugal blower, air enters housing, impeller forces mixture outward along vanes and compressed fuel vapor passes into exit ports

THE BIG FIFTH

ADVANCE OF THE AUTOMOTIVE INDUSTRY DURING THE 1900-1910 ERA

by Lewis B. Simon

THE YEAR 1900 was not only the first year of the century; it was also witness to many "firsts" in the automotive industry. Things such as the steering wheel (first used on Packard and Orient Voiturette), engine under the front hood (Columbia), gearshift lever on the steering column (Peerless Motorette), and the air-cooled engine (Knox). The Knox engine was called the "Porcupine," because in place of cooling fins it had a series of ⅛-in. dia. by two-in. long pins screwed into the cylinder head and wall. Its valve system was no less unique; there was only one valve in the combustion chamber of its sole cylinder. The passage from this valve led to another valve, which switched back and forth between the carburetor and exhaust pipe.

The year 1901 was another big year in the life of the automobile business. Although mass production is not the product of the automobile industry, when Ransom Olds introduced his world-famous Curved Dash Olds, it met with such response that C. B. Wilson worked out a method of progressive assembly. Building 1500 cars that year Ransom Eli Olds well earned the title of the first mass producer of cars. The Autocar Company came out with the first shaft-driven car, a long step forward from the chain drive, then popular. The Mercedes radiator, developed this year, and the forerunner of the modern core, was made of thousands of short (less than four ins.) copper tubes which were arranged horizontally, separated by wires. The radiator was then dipped in solder, both the front and rear faces in turn.

The Peerless came out with a daring innovation—a live rear axle. Previously a countershaft mounted crosswise in the car carried the differential gearing and each rear wheel was chain driven from this countershaft. The rear axle was solid and fixed to the frame and had spindles at each end for the wheels. Hinsdale Smith's car had the first all steel body. Tires were still a source of motorists' misery, and C. A. Shaler developed electric and steam vulcanizers for tire repairs.

Many cars of this time (1902) were "assembled" jobs. Engines were made by one company, gears by another and bodies by still other suppliers. Olds operated on this system, Leland & Falconer making gears and other machine parts. When the Oldsmobile factory burned down, R. E. Olds contracted with them to make the Olds engine also. Henry M. Leland, a New Englander who refused to compromise with accuracy in machine work, built the Olds three hp engine to his own production standards, and increased the hp to 3.7, or over 20 per cent. Becoming more interested in engines, Leland added larger valves and more accurate timing and built a single-cyl. engine producing 10.25 hp. He offered this to Olds, but Olds refused, feeling that his light Curved Dash would be overpowered. At the same time the Detroit Automobile Company met Leland and organized the Cadillac Automobile Company to produce a car for his engine. The first Cadillac came out with a steering wheel, and also with patent leather fenders!

Other notable developments of 1902 were: aluminum bodies (Stevens-Duryea), three-point suspension, integral engine and transmission, a planetary gearset and running boards (all on the Silent Northern), the first attempt at streamlining (on the Baker "Torpedo" body), and the first air-cooled, valve-in-head engine (Franklin). Now that it was proven that cars could run, more attention was given to brakes. Tests were run on an Olds on Riverside Drive, N. Y. At 14 mph the car stopped in 21½ feet, thus beating its competitors, a Victoria and pair, which stopped in 37 feet and a four-horse coach which needed 77½ feet to pull up.

One of the significant advances this year (1903) was the first use of a pressed steel frame on the Peerless. By replacing the wooden frame members Louis P. Moore was able to increase the wheelbase from 82 ins. to over 100. The Peerless was the first car to use steel cylinder liners, developed in France, and the first with fiber camshaft gears. The Jones-Corbin introduced an automatic interlocking arrangement to throw out the clutch while shifting. The Maxwell-Briscoe came out with wood framed bodies having metal panels screwed on.

This year heralded many popular changes: windshields and canopy tops complete with fringe, radiators in front, tilted steering columns and T-head cylinders; sliding gears began replacing planetary gears and now both intake and exhaust valves were mechanically operated.

Four years previous, Edward V. Hartford had been impressed by a shock absorbing device invented by M. Truffault of France. He brought it to America and equipped his Oldsmobile with it. Thomas Edison was interested in producing it, but would offer Hartford only $1000 for the rights. Finally in 1903, Hartford decided to undertake production himself.

In 1904 Howard Marmon brought out an aircooled V-4 engine with the first true pressure lubrication system. Technical innovations included front wheel drive for use in racing (developed by Walter Christie), the first die castings used in cars (for bearings in Franklin engines), and final development of the universal joint (by C. W. Spicer). The first bumpers appeared and G. D. Fisher patented the bumper bracket.

The year's innovation that brought most rejoicing to motorists was the demountable rim, for the clincher rim, patented in 1891, was still being used. One of the clincher side rings was removed by taking off a locking ring; the tire could then be removed and repaired. The demountable quick detachable rim added a locking ring holding the rim on the wheel. At last a tire, mounted on its rim, could be carried as a spare.

In Boston, the Sturdevant brothers made a bid for fame and fortune with the first automatic transmission, which provided only two speeds forward. While the engine was idling, it was in neutral. Speeding it up caused centrifugal weights to swing out and engage the clutch for the low gear train. At a higher speed another clutch, which made it a straight-through drive, was applied by the same method. Since there was no overriding control, it was unsatisfactory.

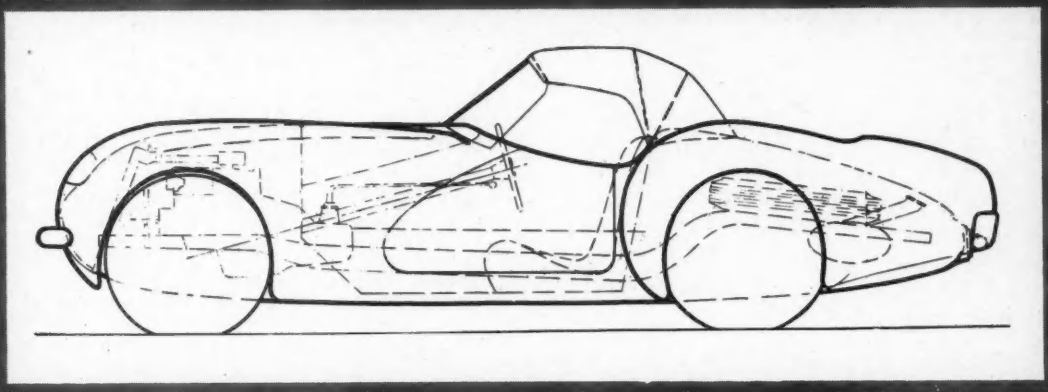
In 1905 the Ariel appeared with an obvious solution to the cooling problem; it was water-cooled in summer and air-cooled in winter. The Baker electric closed cars first focussed attention on body noises (the gas cars being so noisy that no-one noticed the rattles). Baker used a slatted and padded top and was the first to use rubber channels for fixed windows instead of putty.

Peerless introduced the first folding top, called a "cape." The first Reo appeared with one carburetor for each of its two opposed cylinders. Just in case, the radiator was made of flat tubing which could be removed in sections for repairing. Knight invented the sleeve valve engine, and Locomobile introduced the four-speed, selective transmission.

The first electrical system which could be called complete was used on the Stoddard

(Continued on page thirty-two)

DESIGN CONTEST WINNER



VINCE GARDNER of INDIANA WINS TOP AWARD

JUST as it was to many other aspiring entrants, the Ford Anglia Body Design Contest conducted by MOTOR TREND was a personal challenge to Vincent Gardner of South Bend, Indiana.

After the announcement in the August, 1950, issue that a design contest was to be started, Mr. Gardner began to give the idea some thought. When the drawings appeared in the September, 1950 issue he immediately set to work on his plans. The results of his many hours of labor (including a plaster cast scale model) can be seen in the accompanying photographs.

It was a difficult task for the judges to choose a winner from among the hundreds of entries—varying in style and presentation from rough sketches, through engineering blueprints to full-color drawings. It was an interesting contest to judge, for all types of designs were submitted, including convertible coupes and sedans, hardtop coupes and sedans, sports cars and station wagons. Methods of construction and types of materials were of wide range: the use of original body parts, sectioning old cars, plywood, Fiberglas, aluminum, sheet steel and laminated paper.

Insofar as the final selection was concerned, all three judges were unanimous in their choice of Gardner's design as the winning entry. The five honorable mentions (shown on pages 18 and 19) were selected after some discussion.

MOTOR TREND wishes to publicly thank the entrants in the contest for their interest and spirit of competition. To the winner and runners-up, our congratulations; to the rest of the entrants, our appreciation. Such interest makes possible other contests of a similar nature.

FELIX ZELENKA

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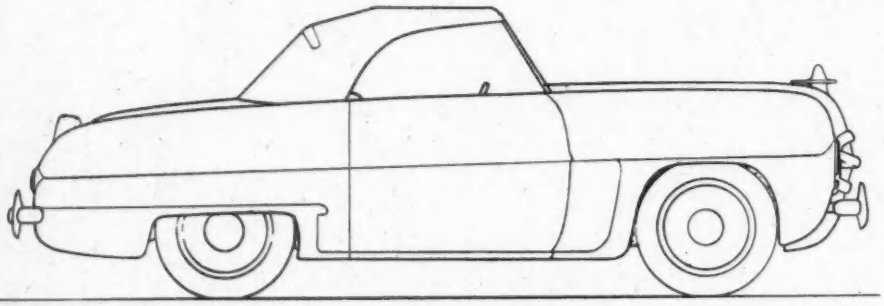
ADDITIONAL CONTEST WINNERS

HONORABLE MENTION AWARDS MADE TO FIVE DESIGNERS



ROADSTER design submitted by Peter Parsons, a college student in Bethlehem, Pennsylvania

. . . AND on these pages are the five honorable mentions, chosen from among hundreds of Ford Anglia Design Contest entries who each won $50 consolation prizes.

The original Anglia chassis (see photo at right) was donated to MOTOR TREND for the purpose of a contest to arrive at a practical, functional body for the car. The body design was not limited to any particular style—and this can be seen in the designs shown here.

The sports roadster design (above) submitted by Peter Parsons, Bethlehem, Pennsylvania, was to be built by him of laminated paper, with shellac as an adhesive, over plywood framing.

The design for a four-passenger hardtop convertible, with removable top (upper right), was submitted by Al Crundall. No changes were intended to the chassis beyond cutting down the radiator and raking the steering wheel.

The sports car (far right, center) was submitted by G. W. McGowan, South Bend, Indiana. Only chassis changes were to lower radiator, steering column, and space seats between frame and driveshaft.

The two-door sedan (far right, bottom) was sent in by Doyald Young, Hollywood, California. The body was to be built almost entirely of molded Fiberglas.

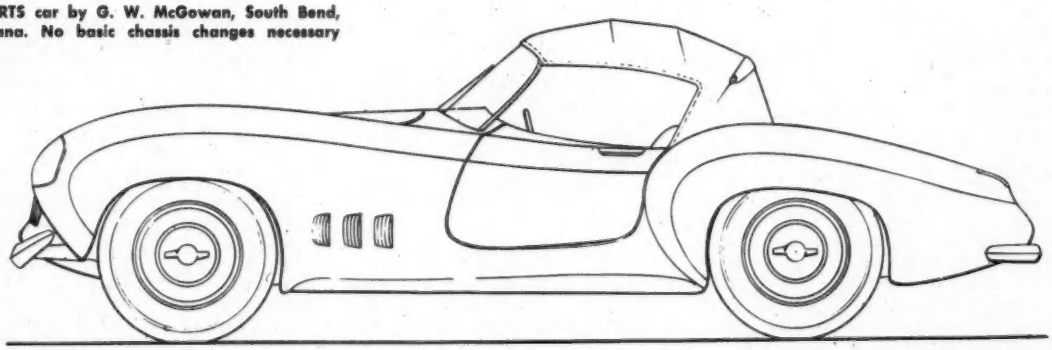
The design (below) was intended by Frank Fleming, Malibu, California, to be a compromise between a sports car and family car and uses a removable hardtop. Body material was to be either aluminum alloy or laminated Fiberglas.

FORD-ANGLIA CHASSIS

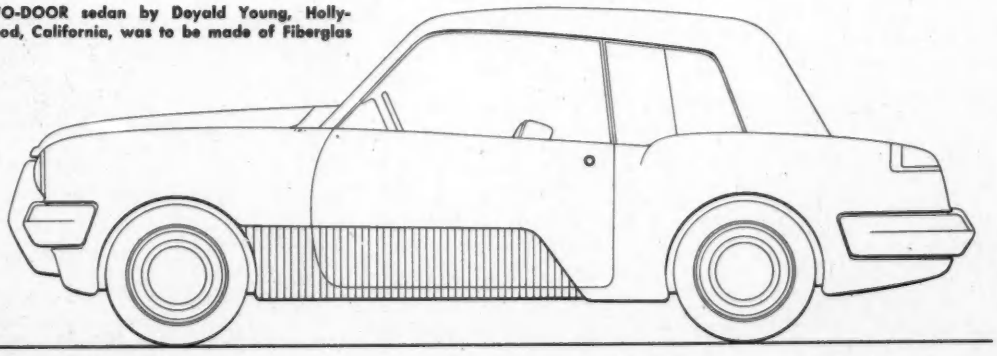
SPORTS coupe by Frank Fleming, Malibu, California, was, he says, a compromise design

HARDTOP convertible by Al Crundall, Santa Monica, California

SPORTS car by G. W. McGowan, South Bend, Indiana. No basic chassis changes necessary



TWO-DOOR sedan by Doyald Young, Hollywood, California, was to be made of Fiberglas



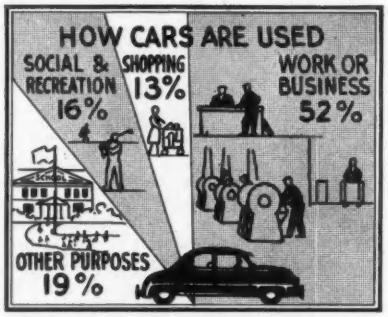
Your New Car Will Cost You More Than Ever

by Harry Cushing

DETROIT, MICHIGAN—Imposition of stringent Federal credit regulations governing the sales of new and used cars has jarred the automotive industry. Although production continues at near record levels, dealers report that sales have seriously declined since Regulation W became effective. Under the new controls buyers must pay one-third cash and clean up the balance in 15 months. The Detroit Automobile Dealers Association says that during the first seven days after the credit rules went into operation, sales of new cars in the Motor City and its suburbs dropped 50.5 per cent. Used car sales skidded 59.5 per cent. A Chicago survey paints the same picture. The Chicago Automobile Trade Association, after canvassing 185 out of its 500 members, reports a drop in new car sales of 40 per cent and a slash in used car sales of 65 per cent. . . . In the first month of Regulation W, orders for 2,375 new cars and 865 used cars were cancelled, the Chicago association said. Dealers in both cities say they have been hurt by the restrictions, and predict that by next spring there could be a sharp drop in production as customers are forced out of the market. They point out that finance company studies show average buyers are unable to pay more than $70 a month on automobile contracts. Under Regulation W, minimum requirements necessitate payments ranging from $80 to $110 per month on low and medium priced cars. Another effect of the Federal order is the ending of the shift by buyers to higher-priced cars. Believing that such cars are now beyond the reach of many people, Kaiser-Frazer for one has revamped its entire 1951 production schedule. Its new program calls for output of 800 Henry Js and 400 Kaisers and Frazers daily. The schedule is an exact reversal of plans laid prior to the advent of Federal Regulation W. . . . Rumor has it that restrictions may be relaxed by increasing payment time limit to 18 months. This may help used car dealers, but won't do much good for new car dealers.

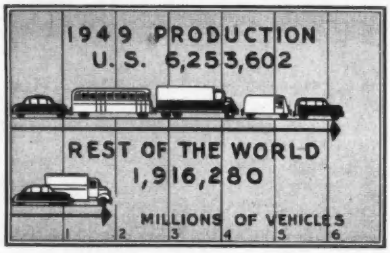
WAR ORDERS: As in World War II, the United States Government is counting heavily on the automotive industry for the technical personnel and production facilities necessary to equip the Armed Forces. During the last conflict the industry manufactured approximately $29 billion worth of material, an achievement unmatched by any other industry in the nation. Now, the men and plants which accomplished this record are being called back into "service" as the country faces one of the gravest periods in its history. Every motor car maker is working with the Armed Forces. There is talk in Detroit of reactivating the famed Automotive Council for War Production, the voluntary organization composed of 613 companies which pooled production "know-how" to expedite output. . . . Only recently the Ordnance Department established a Tank-mobilization of the motor vehicle and allied industries. Millions of dollars in war orders have already passed through its offices. The Automotive Manufacturers Association has perfected a Defense Planning Committee which is now working with various branches of the military. The need for manufacturing experts to assist the Government in getting re-armament into full swing is great. K. T. Keller has been succeeded as president of Chrysler Corporation by L. L. Colbert, and was elected to the Board of Directors at Chrysler in a move to give him more time to devote to his new top level post as chairman of the guided missiles program for the Armed Forces. Other well-known names will be in the news in coming months. . . . Here in Detroit this multi-million dollar guided missile program is compared to the A-Bomb Manhattan project of the last war. In fact, some sources predict that jet planes eventually will be superseded by the products of this development program. One of the reasons given for Keller's appointment is the work done by Chrysler on the atom bomb during and since World War II. Details have never been revealed, but they are known to be vital. . . . During the month of October, latest period for which figures are available, military orders in the amount of $67,156,258 were awarded to the automotive and allied industries. Largest percentage of the war orders were for vehicles from Willys-Overland, Plymouth, Chevrolet, Ford, International Harvester and GMC Truck and Coach. Other contracts called for spark plugs from AC, vehicle parts from Chrysler, tires (U. S. Rubber) and aircraft engine parts (Continental Motors).

DE SOTO'S modern Detroit body, engine plant



NEW CARS FOR 1951: This month Ford and Lincoln hold the new model spotlight, and with these announcements the Ford Motor Company becomes the first of the Big Three to complete new car introductions for the coming year. . . . The 1951 Fords feature the firm's new automatic transmission, "Ford-omatic Drive" (see page ten). . . . Styling is the dominant feature of the 1951 Lincoln and Lincoln Cosmopolitan cars. Most noticeable of these changes are to be found in the rear quarter panels and fenders which have been redesigned to emphasize long, low lines. A more pleasing front end appearance has been achieved with new bumpers and grille, and a repositioning of the head lamps. Numerous minor refinements to the V-8 engine powering Lincolns and Cosmopolitans has resulted in an increase from 152 hp to 154 hp. Close control of bearing fits materially reduces engine noise level. An alloy iron engine block is being used to increase resistance to wear and cracking. Hydra-Matic Drive is extra on all models.

ECONOMIC IMPACT: More than 20 per cent of all retail trade in the nation is automotive, according to data gathered from the latest U. S. Census of Business and distributed by the Automobile Manufacturers Association. The census also shows that one out of six retail, wholesale or service firms in the country is automotive. Sales by these establishments, including gasoline service stations, totaled approximately $41 billion during the year covered by the survey. . . . Along with the census report, the AMA released its latest edition of "Automobile Facts and Figures," an annual booklet devoted to accomplishments of the automotive industry. The authoritative publication shows that last year all-time peaks were reached in production, car and truck registrations, gasoline consumption, motor vehicle mileage traveled, and in tax revenues generated by the industry. Value of the cars, trucks and buses produced exceed $8 billion, more than three times the output of all other countries combined. Since the turn of the century over 108 million motor vehicles have been made by the industry. . . . Motor vehicle registrations hit a peak of nearly 45 million during the year. They are expected to exceed 48 million when figures are tabulated for 1950. . . . A large share of the nation's employment and economic activity is traceable to the motor vehicle and its use. The industry employs nearly 800,000 persons with average weekly earnings of $65.89. This group received about $2 billion in wages during the year. Around nine million people are employed by the various highway trans-



1951 Lincoln Cosmopolitan uses a 154 hp V-8

portation industries. That is about one out of every seven working persons in the country. . . . The tax contribution of the motor vehicle broke all records. It is estimated that out of every dollar spent to purchase cars, 24 cents went into taxes. Federal, state, county and city governments collected nearly another $4 billion in special motor vehicle taxes last year. Motorists added $400 million. . . . Surveys made in 33 U. S. cities show that 52 per cent of passenger car trips are for the purpose of making a living either as transportation to work or in conducting business. . . . The AMA report concludes with the amazing statistic that 71 per cent of the families in the United States own automobiles.

ODDS AND ENDS: Here is one of the reasons most new cars are costing more for 1951. *Ward's Reports*, automotive statistical agency, estimates pay raises granted so far total between $40 and $44 a car. Add to that the equally wide differential in materials and you can see why it is increasingly difficult to "hold the line." . . . Kaiser-Frazer seems to be getting closer to an important war contract. Stockholders have formally approved a proposal to allow the corporation to build ships as well as automobiles. . . . The last remnants of the defunct Tucker Corporation have been auctioned to the highest bidders. Included in the sales were 26 cars, 15 in running order and the remainder with no transmissions. Average price for the cars was $2000. Ford Motor Company now manages the plant in Chicago, and is setting up for the manufacture of aircraft engines. . . . Some day soon, a car without an automatic transmission will be a rarity. Automotive industry sources estimated that currently more than 50 per cent of all cars leaving the assembly lines are equipped with either semi-automatic or fully automatic transmissions. The percentage would be higher if the industry had the facilities to produce them. . . . In four years of production Kaiser-Frazer has built 500,000 passenger cars. Over 20 per cent of this total was made in 1950. The first day that K-F's Henry J went on sale there were 16,993 people in the United States who liked it well enough to place cash deposit orders on it. More than 1½ million people visited showrooms to see the new car on that one day. . . . Chevrolet expects to set an all-time production record this year. When the figures are compiled, this GM division will have built two million cars and trucks, about 25 per cent of the industry's estimated output for 1950. . . . Information recently disclosed by a Detroit automobile firm shows how such a concern boosts the economy of the area in which it is located. Local suppliers receive $40 million yearly for components. That is equal to $202.95 for every car produced by the concern. Michigan manufacturers receive an additional $62 million for parts and materials, or $313.50 per automobile manufactured.

STRICTLY RUMORS: The word is out in Detroit that Plymouth's new Indiana plant, mentioned above, will be devoted to the production of *automatic* transmissions. . . . Look for Kaiser-Frazer to startle the automotive world next spring by introducing a snappy convertible in the Henry J series. Selling price of the new car is estimated to be only a few dollars higher than the present car. . . . Chrysler Corporation's highly secretive ohv V-8 engine is expected to bow on 1951 models. Dodge division is said to be preparing for a V-8 by next September. . . . Oldsmobile has permanently discontinued its 76 series. Biggest production during 1951 will be concentrated on the 88 series. Reports are that this series will be the one in General Motors which introduces a brand new body style. Oldsmobile's 98

(*Continued on page twenty-three*)

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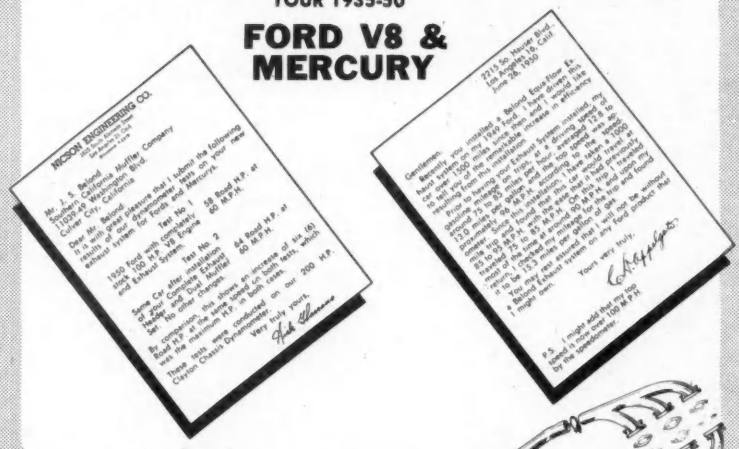
FORD V8 & MERCURY


MCSON ENGINEERING CO.
Mr. J. S. Belond
Southern California Muffler Company
11039-49 Washington Blvd.
Culver City, California
Dear Mr. Belond
It is with great pleasure that I submit the following data of our dynamometer tests on your new exhaust system for Fords and Mercurys.
1950 Ford with completely stock 100 H.P. V8 Engine
Test No. 1
58 Road H.P. at 60 M.P.H.
Same Car after installation of your Belond Exhaust Header and Dual Mufflers
Test No. 2
64 Road H.P. at 60 M.P.H.
By comparison, this shows an increase of six (6) Road H.P. at the same speed on identical tests, which was the maximum H.P. in both cases.
No other changes.
These tests were conducted on our 200 H.P. Clayton Chassis Dynamometer.
Very truly yours,
2215 So. Hoover Blvd.
Los Angeles 16, Calif.
June 28, 1950
Gentlemen:
Recently you installed a Belond Equa-Flow Exhaust system on my 1949 Ford. I have driven the car over 1500 miles and I am pleased to advise you that the installation has increased the performance and economy of my car.
Previous to having your Exhaust System installed my car would top out at 75 M.P.H. and I averaged 12 miles to the gallon of gas. After having your system installed I have driven my car at speeds of 85 M.P.H. and have averaged 17 miles to the gallon of gas. I have also noticed a considerable increase in pick-up and flexibility.
I have driven my car from Los Angeles to San Francisco, a distance of 500 miles, and found that the car ran much smoother. Such a trip with the car not having your system installed would have required at least 10 gallons of gas. With your system installed I found that I used only 7 gallons of gas for the trip.
I am very pleased with the way your system has performed and I am sure that I will not be without one of your Belond Exhaust Systems on any Ford product that I might own.
Yours very truly,
P.S. I might add that my car is now turning over 1100 R.P.M. by the tachometer.

DEALERS: Please forward inquiries on your letterhead.

$45 COMPLETE WITH MELLO-TONE MUFFLERS

It is a well known fact that the Standard Congested Exhaust Systems on Fords and Mercurys create an Exhaust Back Pressure that consumes a large percentage of the Engine Horsepower preventing that percentage of the Engine Horsepower from reaching the rear wheels.

The Belond Equa-Flow Exhaust System eliminates Exhaust Back Pressure, increasing the Horsepower that reaches the rear wheels.

Other benefits of eliminating Back Pressure are: increased gasoline mileage, higher top speed, improved all around performance, reduced possibility of overheating, longer Engine life and a definite reduction in operating and repair costs.

Belond Equa-Flow Exhaust Systems are available complete with all parts necessary for easy installation including genuine straight through Steel Packed Mello-Tone Mufflers.

In cases where the straight through mufflers are not desired, the Equa-Flow Exhaust Systems may be ordered less mufflers. Stock Mufflers may then be used, (except in the case of 1935-36 V8) with a very little loss in efficiency and will be very quiet in tone.

For the convenience of those who may already have a Dual Muffler Set installed, the Belond Exhaust Headers and Extensions to Mufflers may be ordered separately.

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MY CAR IS: _____ MAKE _____ YEAR _____ MODEL _____ BODY STYLE

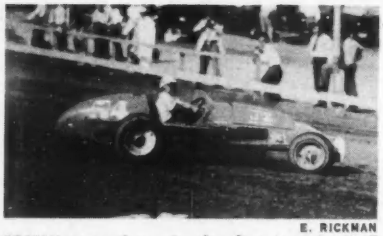
(PRINT NAME AND ADDRESS CLEARLY IN MARGIN)

THE SPORTING SCENE

A POLL OF opinion among sports car owners on the subject of improvement of future meets boils down to these basic suggestions: disconnect or mask tachs and speedometers, leaving top speeds to the drivers' judgment without the goad of instruments; make strict driving tests compulsory for all participants, particularly those piloting very fast equipment; use cars with P.A. systems to patrol the course before and between events, warning and ordering spectators away from danger spots; emphasize skill rather than speed, with slower, more difficult courses; ban high-speed racing in amateur events, and substitute simple acceleration tests, standing and flying quarters when speed is the object; if you're going to go fast, go pro—with enough compensation to underwrite costly cars, trained mechanics, practiced drivers, but if you want motoring at its sporting best, stick to moderate speeds. . . . The official publications of the professional racing world took a decidedly dim view of the last go at Watkins Glen. What's your view?

* * *

THE MIDGETS HAVE been drawing poor crowds, and smaller attendance has



E. RICKMAN

REALLY crossed up in the first turn is Cecil Green in the John Zink Special at Sacramento Fairgrounds. He spun into the fence backwards

led to fewer cars, fewer drivers, and the closing of scores of small tracks, particularly in the Midwest. Some brains are trying to find the transfusion that will revitalize the sport but so far the formula remains elusive. Soundest suggestion: put the midgets on ice for a good spell, snap back with a completely re-organized, nationally integrated sport, in which top pilots will each appear once at a series of tracks that will form a coast-to-coast circuit. . . . In the teeth of this situation and possibly because of it, a brand new track is to be built in Chicago this year, unique in its layout and planned with T.Q. midgets in mind.

* * *

JOHNNY MANTZ, one of the big names in stock car racing, is back on the West Coast telling the boys that the greatest stock car racing organization in the country is NASCAR. Along with hundreds of others in the game, Mantz feels that NASCAR can do as much for racing out West as it has done in the East, and that's a very great deal. And what's NASCAR? The initials stand for National Association for Stock Car Auto Racing, and it's run by Chairman Bill France, Secretary Bill Tuthill, and National Commissioner "Cannonball" Baker. NASCAR doesn't approach race promoters; those who want its sanction apply for it, and if the conditions are right—public liability insurance, good credit record, sound track, etc.—sanction is granted. In the interests of efficiency, safety, and fairness, the organization has published its own rules and specifications for eligible equipment, and these regulations apply to all NASCAR-sanctioned events. As in Big Car racing, points won in *any* official event count toward the season's standings, and this is important, since NASCAR handed out $7000 in point money in '49 and this year's bonus to top drivers will be over $20,000! NASCAR has pioneered the set purse, posted in advance and guaranteed by the association, and its excellent insurance coverage of all sanctioned events is in line with the on-the-ball procedures of this really Big Time outfit: competitors are frequently covered up to more than a half million for one event.

* * *

BIG CARS CONTINUED the season's

E. RICKMAN

FREDDIE Agabashian (Wynn's Friction Proofing Special) slams into the first turn at Sacramento. Note that his left front wheel is off the ground

AAA contest at Springfield, Illinois, with Tony Bettenhausen in the lead from the first lap to the hundredth. Neal Carter fought hard toward the last, pushed the winner relentlessly, came in second just three lengths behind him. Chuck Stevenson made third money in his Wynn's Friction Proofing Special, and the point standings were in for more shuffling. . . . With the national championship still entirely up in the air, the Big Car caravan headed for California and the Sacramento Fair Grounds for another AAA 100-miler. Twelve thousand fans were on hand for the second annual installment of the Agajanian-backed event, saw Bettenhausen set a new lap record by qualifying at 96.51 mph. Tony took an early lead but tangled with another car on the 11th lap, went out of control and through the fence with fatal results to a spectator. Jimmie Davis took over in first place until he went out in the 60th, and Bill Schindler and Duke Dinsmore moved in to fight a duel to the finish. Schindler took the checker, was set to take the $2400 winner's purse when Dinsmore protested the decision, claiming he'd been shorted a lap. It took three hours to get a check on the AAA tape, but Dinsmore was right. Third money was taken by Henry Banks of Compton, Calif., and point leads remained basically unchanged, since most of the leaders had dropped out with mechanical trouble.

CUSTOM CARS and hot rods will compete on the basis of beauty, construction, originality, and novelty at the roadster and custom show to be held at the Oakland, Calif., Exposition Building February 20-25. This year's installment of what was last year a very successful show will display fewer track roadsters, more street, lakes, and custom jobs. Entry blanks for "The Bonneville of Car Construction" can be had from the show's office: 918 Fallon St., Oakland 7.

* * *

THE HENRY J was mentioned here last month as an exciting performer at the 300-lap stock car meet at Oakland. Henry J's have been doing well in the East, too, and many drivers have announced intentions of switching to the small Kaiser for the '51 season. . . . The "Hank" did well at NASCAR's 200-lapper at Martinsville, Va., came in ninth ahead of 12 other, heavier finishers. Herb Thomas of Olivia, N. C., won the event in a '50 Plymouth, second and fifth spots went to the same make, with the other top gaps filled by Olds. . . . And at Thompson Speedway's 100-mile, 200-lap championship stock car classic a brilliantly behaving Henry J, piloted by Reno Tulonen, took third spot. Tommy Melvin of Los Angeles was first in a '50 Olds, Johnny Dubois of Patterson, N. J., second in a '50 Ford.

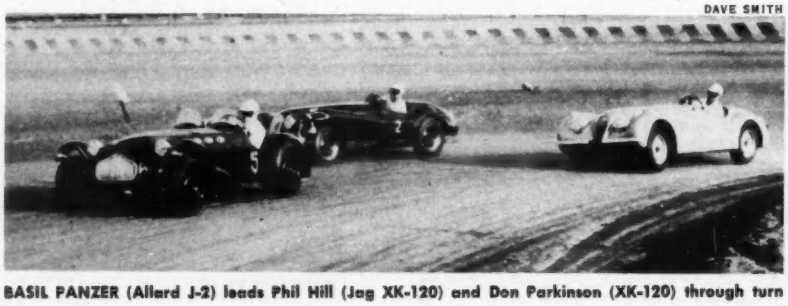
* * *

FLASH BACK TO NASCAR as you read this and you'll see very clearly just exactly why big league organization can make the sport and bush league stuff break it. On October 14 over 50 drivers, mechanics, and owners went on strike just before the 100-lap main event was to start at one of New Jersey's best-known speedways. Eight cars lined up broadside across the track as an obstruction to any racing. Reason: the boasted "purse" of almost $4000 turned out to be just a publicity release intended as a come-on. Parker Bohn of Freehold was the driver who led the protest. He explained the conditions to the crowd over the track's P.A. system and only an active police force managed to control the fans' disgust. Since the promised purse just wasn't there, there was no show, and a suddenly unpopular management had to refund over 2500 admissions.

* * *

ROAD RACERS took to a professional track in October as members of the California Sport Car Club competed on Carrell Speedway's one-mile, twisting road course. The day's events included two trophy dashes, eight 3-lap heats and a 12-lap main. Winner of the trophy was Arnold Stubbs (MG-V8-60), beating out Phil Hill (Jag XK-120) and Jack McAfee (Jag XK-120). Beating the cream of the crop in the main was Erb (MG-blown), who finished ahead of Armstrong (MG-blown), Panzer (Allard J-2), Hill (XK-120) and McAfee (XK-120), in that order. The experience gained by some of the drivers on Carrell's road course stood them in good stead on Nov. 5 in competition at Pebble Beach.

DAVE SMITH



BASIL PANZER (Allard J-2) leads Phil Hill (Jag XK-120) and Don Parkinson (XK-120) through turn

SPEAKING OF THE SCCA, many readers must be wondering just what these initials stand for. Back in the middle thirties a group of sports and custom car enthusiasts banded together under the name of the Automobile Racing Club of America. They held highly successful races and rallies and constituted the vanguard of that ever-growing body of motorists who, along with John Bentley (Sept. MOTOR TREND), hold that cars are vastly more than "just transportation." The more sedate title, "Sports Car Club of America," was adopted by these pioneers in '43. By '48, 300 members had adopted "the gospel of motoring as a sport and of automobile engineering as an art," and at the end of '49 this figure stood at 700. SCCA-sanctioned events are becoming more numerous each season and are models of planning, discipline, and sportsmanship. No other organization in America can match the accomplishments of the SCCA in restoring to the automobile some of its most precious, yet almost-forgotten, values.

Spotlight on Detroit

(*Continued from page twenty-one*)

series will be virtually unchanged except for chrome trim.

PLANT EXPANSION: Whether or not automobile makers will be able to use their facilities for building cars and trucks, producing war goods, or a combination of both, the industry has experienced one of the biggest periods of expansion in history during the past five years. Rough estimates indicate that $1.5 billion have been invested in new plants, research centers, warehouses, service depots, machinery, equipment and other facilities. According to a MOTOR TREND survey the end is not yet in sight; in some cases plans have been projected as far ahead as 1960. . . . By the end of 1951, when current construction is completed, Ford Motor Company will have increased production capacity by 50 per cent over pre-war levels. During the next decade the firm plans to spend $600 million. Half of this huge sum already has been appropriated, with the other half being held in reserve to cover projects now under study. Plants are being built in Cleveland, Buffalo, Cincinnati, Charlotte, North Carolina, and Wayne, Michigan. The program takes into consideration requirements for building Ford's 1960 models, company executives say. . . . In Detroit, DeSoto recently placed into operation a new body and engine factory, said to be the most modern plant of its type in the country. It contains nearly eight miles of conveyors, with those carrying bodies being controlled by automatic electronic devices. The entire plant is painted in shades of yellow and green for employe comfort. It has a capacity of 60 bodies an hour. . . . Buick has begun erection of a new plant in Flint, Michigan. It will be in operation by the end of 1951, and will be an important factor in Buick's announced plans to take over third place from Plymouth in the automotive industry's production race. . . . Pittsburgh, Pennsylvania, is the home of a new Fisher Body plant, a facility designed to supply 21 other domestic General Motors assembly factories. . . . At Shadyside, Ohio, Kaiser-Frazer has begun construction of a $3 million pressed steel plant. It will supply the assembly lines at Willow Run. . . . Ground has been broken for a new $25 million Chrysler plant in Indianapolis, Indiana. Plans are to have the factory operating by next summer.

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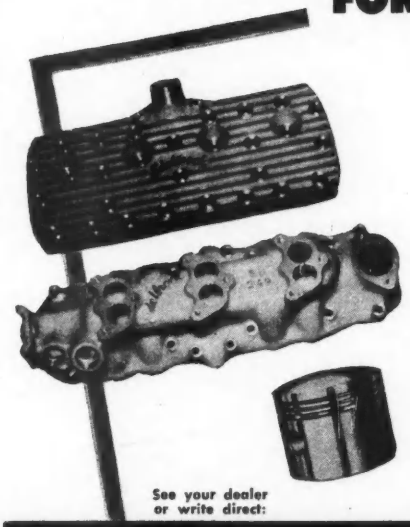

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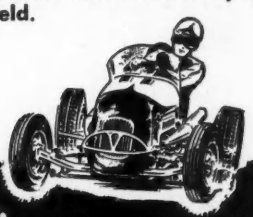

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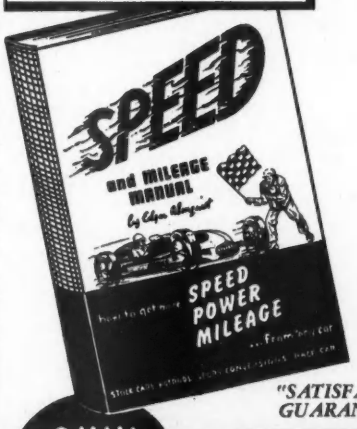

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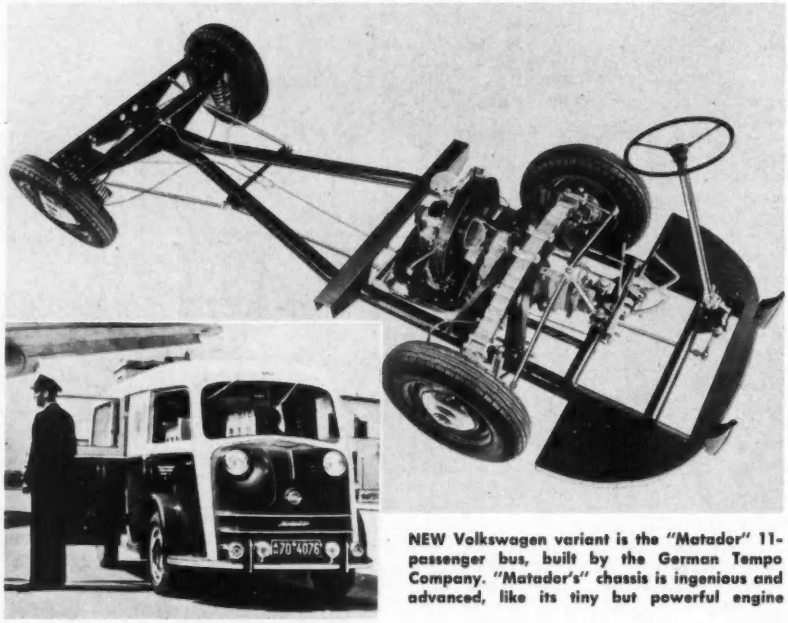
ENGLAND, ITALY and JAPAN INTRODUCE NEW CARS

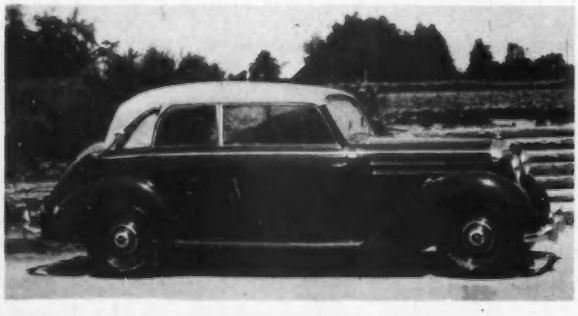
by A. Devereux

ENGLAND: The Allard sedan (or saloon, if you prefer) is now definitely in production, is as handsome and lively as its already famous soft-topped brothers. The divided front axle is still used, here with coil instead of transverse leaf springs. The sedan has, in addition to striking beauty, the same terrific cornering ability as the sportier models, is good for an honest 80-85 mph stock . . . 1951 trends: England's rearmament program is gaining momentum, with a crushing effect on the would-be new car owner. Steel, thanks to its scarcity a villain of long standing, will become even more scarce, and while British cars will continue to court the export dollar, Mr. English Everyman must resign himself to a more extended relationship with his bicycle or tiring pre-war car. White hope is ferrous metal substitutes—light alloys, wood, plastic; watch for the tendency to develop. The new cars here are swinging almost entirely toward ohv and, in the case of a few luxury jobs, F-head engines. Every manufacturer is adopting i.f.s. And bonded clutch linings are coming into widespread use, the winning Jag XK-120 of the recent Silverstone production car race having been so equipped . . . Morgan, long famous for their three-wheelers and their snappy little two-seater, are bringing out their "Plus Four" model, available in two- and four-seater versions, and also as a convertible coupe. The car has all the personality traits of more widely known light sports cars, has a healthy, 2088 cc (127.6 cu. in.) four cyl. pushrod engine which develops 68 bhp at 4300 rpm, boasts the good power to curb weight ratio of 1:25.5. The car is engineered with originality and imagination, should give MG plenty of competition once it's been discovered in the U.S. Prices are nice: the two-seater costs just $1426 in England . . . A really superb maintenance manual has been published by Jaguar Cars, Ltd., dealing with the Mark V coupe and sedan models. Although the book is primarily intended for shop use, interested individuals can obtain copies from Coventry for £2 ($5.60) each . . . As 1951's Festival of Britain approaches, with its threat of jammed traffic, the trend toward banning private auto traffic grows; the alternative, London's busses. Wary automotive groups regard the prospect as a plot that might become permanent, are now taking offensive steps for self-protection . . . Lanchester, Daimler's smaller car, has been radically redesigned with an eye on the world market. More than that, the Lanchester factory itself has been reconstructed around the production requirements of the new car—a somewhat unusual circumstance that guarantees that development of the product won't be hindered by any "dated" elements of the plant. The traditional, graceful lines of the new Lanchester 14 closely resemble those of its predecessor, the 10, but the resemblance between chassis is more remote. Displacement of the four cyl. engine has been stepped from 1287 cc to 1968 cc (120 cu. in.), giving 60 bhp at 4200 rpm. Coil spring front suspension has been replaced by torsion bars, Daimler fluid transmission is used. Throughout, the workmanship and attention to detail are typically Daimler: the British Best . . . Apathy in the midst of ambition: the Algiers-to-Cape Town Rally may attract little attention in the Northern Hemisphere, simply because nobody seems to realize what a devastating trial the run will be. But African residents are fully aware of what it means to cross their continent by auto, and they'll be impressed by and will buy the winning make. Still, Ralph Sleigh, an Englishman who has twice broken the trans-African record, has been unable to interest a single English manufacturer in entering a car . . . Americans who have cried long and loud for a true U.S. sports car should be much appeased by Nash's announcement of a new model early this year, based upon the best English and American equipment and know-how . . . it will *not* be the NXI.



NEW Volkswagen variant is the "Matador" 11-passenger bus, built by the German Tempo Company. "Matador's" chassis is ingenious and advanced, like its tiny but powerful engine

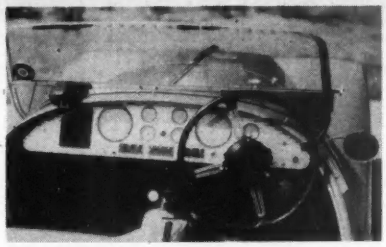
ITALY: Making its bow at the Paris Salon was '51's new Alfa-Romeo, a very exciting car. The previous post-war Alfa passenger cars have been 2½-litre sixes, produced in numbers of about 50 a month. Thanks to Marshall Plan aid, the new model, a dual oh cam four with 1884 cc (115 cu in.) displacement, will roll from the lines at about 500 a month. The car has a top speed of 90 mph, rather admirable for a sedan with such a small engine. Peak piston speed is only 2780 feet per minute, 79 bhp are developed at 4800 rpm, camshafts are chain



MERCEDES-BENZ line for '51 includes three body styles: sedan, convertible sedan, and coupe. Lightness and economy are combined with luxury

AUTOCAR

NUVOLARI at 150 mph, caught by Monkhouse' camera . . . one of scores of brilliant shots in "Motor Racing With Mercedes Benz," book of month



INSTRUMENT panel of the Connaught competition sports car is Jaeger-equipped and complete

driven, compression ratio is 7.5:1. Performance of the new model is equal or better than that of its predecessor, and its selling price will be much lower.

JAPAN: Three cars are being produced here, Toyopet, Datsun, and Ohta. The Toyopet is the most advanced, its chassis having tubular single backbone frame, coil spring i.f.s., swing axle-transverse leaf independent suspension at the rear. Datsun is very similar in appearance to the current Crosley, and Ohta resembles a small pre-war British Austin. All the cars are powered by light four-cyl. engines . . . And Kaiser is here, too. The Kaiser and Henry J will be assembled in 1951 at a plant located between Tokyo and Yokohama; production will be in the 500-1000 per year range.

SPORT: Monza is a magic name, scene of the late-in-the-season Italian Grand Prix, generally a show-down event. So far in 1950 the Type 158 Alfa had been almost unchallenged, untouched by competition. But in practice at Monza Ascari pushed his new 4½-litre unblown Ferrari V-12 around the 3.9-mile circuit to a new record. Two days of practice followed and it was only at the last minute that Fangio and his Type 158 managed to better the Ferrari 118.62 average by .2 seconds. Alfa was noticeably worried, had five cars on the starting grid against the two new Ferraris piloted by Ascari and Serafini, and there were six fine 4½-litre Talbots, plus much lesser fry. Seventy thousand feverish spectators rose to their feet as the 25 screaming brutes took off, Alfas in the lead. On the first lap Ascari moved up to the leading Alfa's tail and stuck there, and the other Ferrari and Sommer's Talbot moved up among the trailing Alfas. On the 22nd lap Ascari's Ferrari blew up and he walked back to the pits. Then Fangio's Alfa folded. Serafini stopped his Ferrari for rubber, and the crowd went insane when Ascari took it over and went back into the race. Fangio similarly took over Taruffi's Alfa, promptly rent it asunder, and was out for good. From here to the finish it was steady going with Ascari constantly closing on Farina's lead, which shortened to 18 seconds at the finish. The winning Alfa's average speed for the 312 miles was 109.7 and Fangio made the fastest lap at 117.445 mph . . . The Czech G.P. was, not too surprisingly, a non-international event, won by Czech pilot Hovorka, Maserati-mounted . . . In spite of such murmurings from the experts as "30 miles—it's not worth the bother," the BRM ran and won in the rain at Goodwood. Reg Parnell drove the car in both the Woodcote Cup race and in the Goodwood Trophy main event. Competition consisted of the usual assortment of somewhat slow Maseratis, E.R.A.'s, and Altas, and the BRM held together nicely and cleaned the field effortlessly with an average speed of 84.48 mph. This sort of field experience is healthy, and the more the better, before next season begins . . . The BRM fiasco at Silverstone was followed by a letter to the

(Continued on page twenty-seven)

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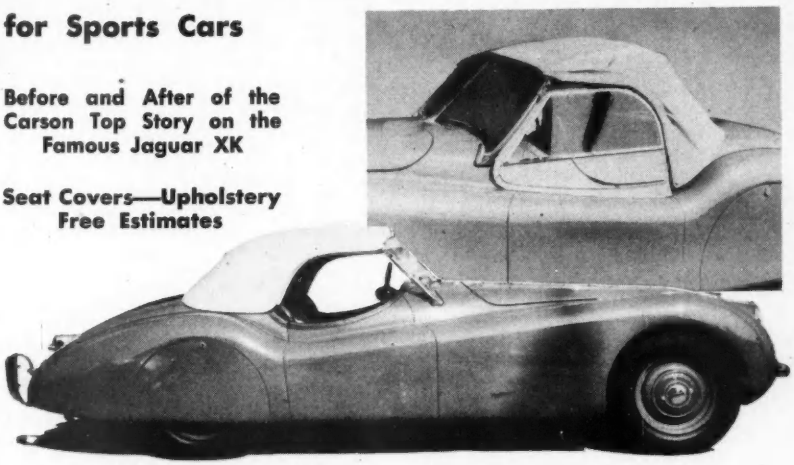

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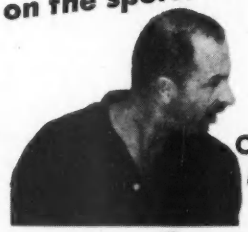

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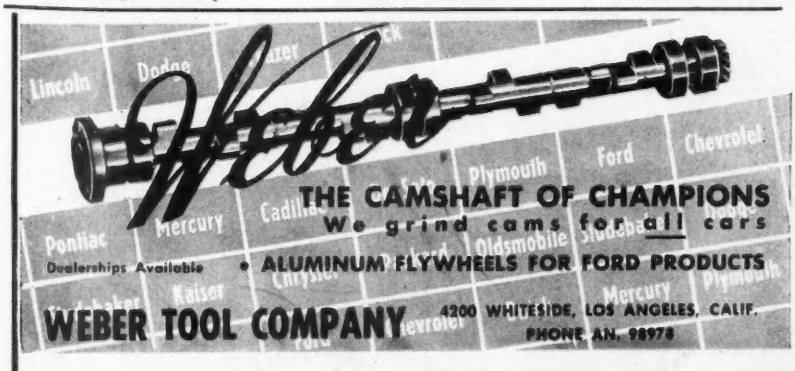

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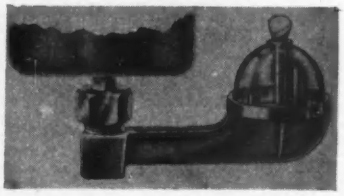

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POLISHES

Do You Polish and Wax Your Own Car?

by E. A. Jaderquist

GRANITIZE, Simoniz, Siliconize, Mirrorize, scream the signboards. "Don't Wax It—Mac's It," suggests a cardboard Scotchman on the counter of an auto-supply store. The spinning consumer, harried and bedeviled by urgent advertising, looks around for expert guidance and can find none. Popular magazines occasionally boom a new product as they did the silicones but their articles are written before the innovations have been tested in practice and so must contain promises rather than performance records. The consumer publications that rate products on laboratory tests and performance have given the field a clear miss for the last two years. Even the manufacturers, usually the source of accurate descriptions of ingredients and recipes, keep silent about what goes on inside the can you buy.

So father buys something, somewhere, for some reason and prays that it will be adequate for the job. If he is a member of a typical American family, he'll find himself adroitly maneuvered into doing the job alone. Waxing Sunday is a holiday for everyone but dad. As he stands in the garage, he wonders if it is worth doing at all. And the second thought, almost synonymous with that first doubt, generally toys with the idea of hiring a professional shop to do the work.

It may be small comfort, dad, but you're not alone. A learned estimator says that 90 per cent of all cars are owner-polished. And it is a necessary job. Unless you can afford to buy a new paint job every year, a wax coating on the paint is as essential as an oil coating on the bearings. Paint, exposed to the sun, oxidizes with increasing rapidity with the result that it loses gloss and toughness unless protected. But the American custom of doing the waxing at home is not so easy to support.

For some inexplicable reason a generation that refuses to perform such simple tasks as changing oil or gapping spark plugs is willing to accept the laborious duty of scrubbing and buffing the family car. Perhaps people believe that no skill is required to apply a durable, gleaming coating to an automobile finish. A simple comparison between the *usual* home job and a *professional* production will shatter that illusion.

Each stage of the job—cleaning, applying the coating, buffing—is critical, requiring good materials and skilled judgement. Polish manufacturers say that most amateurs fail because they are not able to recognize road film and oxidized paint. Second most common error among the backyard boys is not following the directions on the product they are using. Third is probably applying the wrong product for the job at hand.

In a professional shop, the job is done this way. The car is first washed down to remove any grains of sand that might scratch the finish during the cleaning operation. Then a cleaner is applied and while it is still wet the operator works it with a power wheel, staying on each spot just the right amount of time to remove *all* oxidized paint, soot, carbon, grease, salt crystals. When the car is dry, the coating is applied evenly, thinly; it is allowed to dry and then buffed by hand. That's all there is to it.

At home the procedure is the same. The amateur will guarantee success by stressing the first operation—*cleaning.*

The question of which brand of cleaner and polish to use is a perplexing one. Fantastic claims have been made for some while, others rely on their old reputations. There is no law to compel the manufacturer to list the ingredients of their products, so the consumer will search in vain for a standard of comparison. If it is any comfort, few, if any, of the preparations now on the market are harmful. Harsh silica abrasives and paint-dissolving solvents are rarely encountered anymore, even in containers bearing home-printed labels though it is wise to test these by applying them on a tiny area in one of the less noticeable places on the paint.

Professionals and manufacturers agree on one point: There is no substitute for a paste wax-silicone-resin coating. It is heavier, more durable, more resistant than a liquid solution containing the same three ingredients. Least effective of all are the numerous brands of cleaner-coating combinations available. These probably account for most of the sales made to the home polisher today because they are so simple to apply. Father wants to go over the car once and quit for the day. The fact that he must repeat the job in a month or less, depending on climate and road conditions, is not important on Sunday morning.

At first, silicones seemed to offer an easy compromise between good results and ease of working. Under test the silicones did not stand up well when used alone. To explain this it is necessary to inject a little silicone lore at this point.

Silicones are produced from silica, next to carbon the most common element on the earth's crust. Powdered silica and powdered copper are treated together chemically to produce silicone rubber, silicone grease, silicone oil, silicone fluids, silicone resins. Dow-Corning and General Electric produce all American silicone products and they have developed a liquid that can be used in auto polishes. Precisely because it is a liquid, it will not hold up under the beating an ordinary automobile takes. While the silicone coating lasts it is excellent—more heat-resistant, more water-repellent than any wax—but to be effective for any period of time, the silicone liquid must be combined with a wax to hold it on the surface of the paint.

A typical cleaner-coating, one-operation product contains abrasive, solvent, emulsifier, water, and some kind of wax or silicone liquid. Usually it will be easy to apply and will buff to brightness with very little effort. What actually happens as you apply it is this: the abrasive removes road film and the solvent attacks grease. All of this unwanted dirt and grease is floated to the top where it dries into the powder you later wipe off with a dry cloth. Wax or silicone liquid, being heavy, sinks down to the clean paint and stays there. The action that takes off the dirt also buffs the protective coating.

If your car is not very dirty to begin with this process will do the job. The protective coating will only last for a short time because there is so little of it (a pint can seldom contains more than a piece of wax the size of a walnut and two teaspoonsful of silicone liquid). If your car is very dirty, however, the entire job will be wasted because it is difficult to remove a heavy layer of oxidized paint with the mild cleaners contained in most combination products. For such a job a heavy-duty abrasive is necessary.

Abrasives used on paint are friable—that is they break up into powder under pressure.

(Continued on page thirty-three)

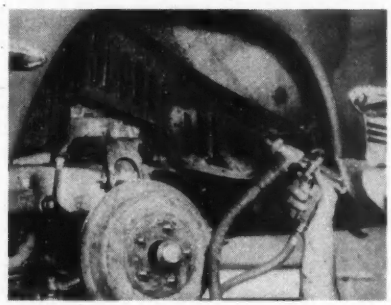
ACCESSORY TRIALS

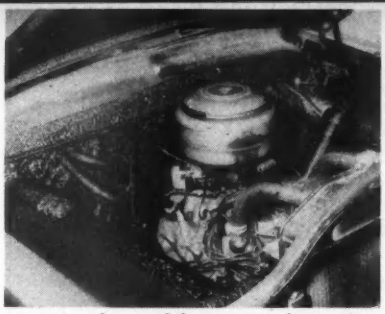
3M Undercoating

RUNNING a comprehensive test on an item such as undercoating is quite difficult; much must be left up to the individual's general feel about the improvements. However, when we decided to undertake this accessory trial we felt that a direct comparison before and after the undercoating was applied, with the test car being driven over all road conditions, would give the reader the best possible insight into the advantages or disadvantages of undercoating.

The test car, a '50 Ford using standard tires with 32 lbs. air pressure, was driven over tar strips, rutty roads, gravel and dirt roads, over washboard highways, and over railroad tracks. Notes were made on the amount of noise and other conditions that resulted. Then the car was driven over to Miller's Underseal Service, 2439 W. 9th St., Los Angeles, for a complete application of Minnesota Mining and Manufacturing (3M) Underseal.

The underseal (a rubberized coating applied in ⅛-in. thickness and brown in color) was sprayed underneath the hood, on the firewall, throughout the trunk compartment, including the lid, and underneath the car on the fuel tank, filler neck, throughout all the fender wells, on the flooring, fender skirts and gravel shields. In all, from 13 to 15 gallons of underseal were sprayed on the car, preventing bolts and nuts from loosening,





protecting the metal from rust and corrosion, and completely encasing the car in a waterproof blanket of rubber.

After the thorough job of undersealing, the coating was allowed to dry for a full day before the second phase of the test was made. In this second phase of the test, the car was driven over the same roads so that the identical conditions of noise, flying rocks, gravel, etc. would be encountered. The conditions and results are shown in the following table:

CONDITION	BEFORE UNDERCOATING	AFTER UNDERCOATING
Engine Noise	Not excessive	Decreased noticeably
Tire Rumble	Definite; not too loud	Minor noise, muffled
Gravel and Dirt	Metallic sound from flying gravel at all fenders	Completely eliminated
Washboard	Hard rumble	Muffled sound
Train Tracks	Road shock and rumble	Present to slight extent, but rumble definitely modified

It was definitely proven to us that with a thorough job of 3M Undercoating the noise characteristics of a car are definitely lessened, and that corrosion possibilities should be decreased to a minimum. The application of 3M Undercoating does not necessarily mean that all of the car's ills will be eliminated, but that it definitely does perform its purpose: that of retarding squeaks and rattles, absorbing engine noise, keeping bolts and fittings tight, repelling flying gravel, preventing rust and supplying insulation against heat and cold.

Tendance Continentale

(*Continued from page twenty-five*)

British motoring press in which Raymond Mays thanked those whose enthusiasm had remained unabated, assured them that the cars and the men behind them would do their best to come through. A BRM Association has been formed to enable interested parties to contribute toward this project. Three dollars gives you an annual membership, 75 cents an associate status. You get a lapel pin, a BRM booklet, and help the cause . . . We've been patiently waiting for the inevitable, and here it is: a two-litre Mercedes-Benz racing car has been working out at Nurburgring.

BOOK OF THE MONTH is not new but highly notable. Imagine the results if a top racing authority, a fine writer, and an outstanding speed photographer could have won the confidence of the Mercedes racing team in the late '30s, traveled with the equipe for an entire season, and then carefully documented the story of pre-war German speed! George Monkhouse fills all those qualifications, actually accompanied the Mercedes team throughout the '37 season, and was with them during much of '38 and '39. His "Motor Racing with Mercedes-Benz" was first published during the war; since then much new material has become available, and a new edition was published in '49. Monkhouse is one of the handful of really excellent writers in the automotive field, and his coverage of the most spectacular period in racing history is a must for every connoisseur. Forty-eight good photos are part of this well-done book, available for $3 from your pet importer or from G. T. Foulis Ltd., 7 Milford Lane, Strand, London, W. C. 2.

LATE FLASH: Two BRM's were on hand for the Barcelona GP on Oct. 29 and the story was, again, one of failure. Reg Parnell was slow in leaving the starting grid, looked good for almost two laps when his engine cooked up. Peter Walker drove the other British hope, lasted over 50 laps, got as high as fifth place, then his gearbox froze. The race was won by Ferrari, whose drivers Ascari, Serafini, and Taruffi took the first three places—Ascari's winning average was 93.98 mph. Our source of information is an airmailed copy of the *London Times*, which neglects to state whether the Ferraris were 1½-litre jobs or new 4½-litre versions. Alfa is nowhere mentioned in this report, so it must be concluded that they did not run at Barcelona. Fourth and sixth places went to Talbots and DeGraffenreid's Maserati came in fifth. The *Times* takes the view that it is doubtful that the existing BRM design will ever match the fast Italian machines in acceleration and speed.

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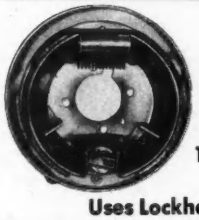

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Are You a Safe Driver?

(Continued from page thirteen)

elementary courses in 738 American colleges. In addition to his teaching and writing, Dr. Ruch is now president of the California Psychological Association and vice-president of the California Safety Council.

In the early days of setting up the tests, Ruch was the advisor and Clark Wilson the worker. The Safe-Driver Selection System was originally the subject of Wilson's dissertation for his Ph. D. degree. When it became apparent that the theory worked in practice, Ruch and Wilson set up a business partnership to distribute the tests and finance improvement of the method.

As it works now, a business pays an initial fee of $100 for setting up the system and $1 additional for each man tested—an extremely small sum when compared to the price of most aptitude tests. The tests have proved most successful when given to newly-hired drivers. If the applicants who fail the tests are not hired the company's accident rate will drop 15 to 20 per cent.

Both Ruch and Wilson hasten to explain that drivers, like Steve, who fail the test are not necessarily unsafe on the highway. In some cases the individual has learned to compensate for his inability to see the important thing quickly by driving with greater care. Such a man can safely be hired. But the majority of drivers who lack this aptitude never know it. The Ruch-Wilson results can serve as a warning to those drivers who must learn to compensate.

Because this compensation factor enters the equation, the two originators of the test refuse to apply their system to an individual. They will *not* say that applicant George Russell will be an unsafe driver because he could not pass the tests. What they do say is that if a group of men are given the test, either all at once or over a period of time, the men who score lowest will be poorer drivers than the men who score highest. In the terms of an illustration the authors use, an insurance company does not say that 40-year-old George Russell, applying for a straight life policy, will not live beyond his calculated life-expectancy. The company will, however, make George Russell pay the standard premium for his age group, thus penalizing him for his age on the perfectly sound statistical basis that all 40-year-old men, taken as a group, have only the calculated span of years remaining. If George Russell compensates for his increased age by living more slowly—eating judiciously, sleeping more, easing up on nervous tension—he will live longer but his insurance premiums will not be reduced.

At the present time, Ruch and Wilson have made no provision for the application of their tests to applicants for driver's licenses. There are a number of legal barriers that must be surmounted. While it is perfectly legal for a company to refuse employment to those who fail the Ruch-Wilson battery, it is not legal to deny a license to drive on such grounds. Much more proof of the validity of the two psychologists' conclusions is needed. This proof will be forthcoming as more transit lines and trucking companies use the tests to supplement their safety programs.

Ruch and Wilson have discovered an unusual phenomenon in their four-year experience with the Safe-Driver Selection System. In tests with street-car operators, bus drivers, heavy-truck drivers, delivery-truck drivers and motorcyclists, it has been demonstrated that safe driving aptitudes are the same for all vehicles. Once he has learned the basic skills of his vehicle, the operator is on his own.

The discoveries of Ruch and Wilson will give the entire nation-wide accident research program a healthy shot in the arm. Two hitherto-undiscovered variables have been found, identified and measured. Further experiments, based on the control of these two variables, should yield other discoveries of major importance. The goal is to describe the safe driver in precise, measurable terms, so that prospective drivers can be carefully screened for their ability to fit in with the social pattern necessary for safety on the highways. We are far from that goal now because, as it has in warfare, our technical ability to build more and better machines has far outstripped our knowledge of the people who operate them.

There is something very constructive we can do now—something to save the lives of 5,000 people every year and millions of dollars of your money that might much better be applied to roads than funerals and traffic courts. Urge your state vehicle department to consider adoption of the Ruch-Wilson tests. A license applicant who fails the test can then be warned of his lack of the two important aptitudes—perceptual speed and spatial relations intelligence—and told that he must compensate for this lack by driving more slowly. His license would be marked accordingly. Then when he is caught speeding, his penalty must be more severe because his offense is serious. The wise driver would not be doing any speeding. He would welcome any additional knowledge about his own limitations, especially when that knowledge might save his own life and certainly will save him a number of irritating minor accidents.

By such positive, quantitative action as this the American accident death rate will be reduced most effectively.

Answers to problem: A-4, B-3, C-5, D-2, E-6

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. . . I was never so disgusted with a car as I was [with] the '49 Olds 88 I purchased. [Some of my gripes] are: left rear door leaks very badly; radio has never worked properly . . .; paint under doors has all chipped off and frame is rusting . . .; throttle rod and spark plug trouble; broken hood release . . .; replaced piston rings; poor gas mileage; oil consumption very high (. . . one quart every 500 miles) . . .

William R. Sibbach
Glenview, Illinois

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W. C. Gamble
Jefferson City, Missouri

★ ★ ★

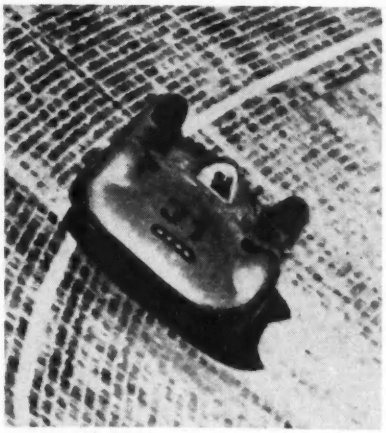
Here are a few [gripes] on my '51 Kaiser, three months old, and 11,000 miles over all kinds of roads: (1) keeping the front end aligned, (2) lack of storage space in the trunk, and (3) deterioration of rubber around front and rear windows. And as a suggestion: Why not a spare tire compartment that can be reached without opening the trunk?

George Fogg
Randolph Field, Texas

BIBLE OF SPEED

"The Grand Prix Car"

Written by Laurence Pomeroy



IT'S BEEN a long wait for the definitive book on high-performance automobiles. And Laurence Pomeroy, technical editor of *The Motor* (London) needed a long time to write it. He devoted the better part of a lifetime to a close study of the purest of racing thoroughbreds, then took all of a decade, from '39-'49, to digest the wealth of material he'd collected, and, finally, to produce "The Book."

"The Grand Prix Car" is a big book in many ways. Its pages measure 8½x11 inches and there are 419 of them, plus a separate index. It contains hundreds of drawings made by L. C. Cresswell, an undisputed master of technical illustration, that clarify, more graphically than any photo, the most esoteric points of racing car design. It includes a real gold-mine of rare, huge photos of the cars, their engines, chassis, and suspension. The price is big too, $17, but the book is worth every penny of it.

Pomeroy is a trained engineer who writes in a style graceful enough to make a monumental technical history highly readable, and who has the ability to relate facts not only with admirable thoroughness but with subtlety and intelligence as well. His book consists of three parts: a concise, sweeping history of Grand Prix racing from its birth in '06 to its screaming culmination in '39; an engineering cross-section of the entire period, wherein 17 of the classic racing cars are scientifically dissected and appraised; and a conclusion which analyzes and relates the sequence of technical change during the 33-year period. The cars dealt with in the second section are '08 Italia, '11 Fiat, '12 and '13 Peugeot, '14 Mercedes, '20 Ballot, '22 Vauxhall, '22 Fiat, '24 Sunbeam, '27 Delage, Type 35 Bugatti, 4.5-litre Bentley, P.3 Alfa-Romeo, Type W25B Mercedes-Benz, 6-litre Auto Union, and Types W125 and W163 Mercedes-Benz. If you manage to absorb the mountain of data that Pomeroy has assembled you'll be a real authority on race car history and design.

"The Grand Prix Car" can be had from Motor Racing Publications Ltd., Abingdon-on-Thames, England; address of the American distributor will be given on request.

G. B.

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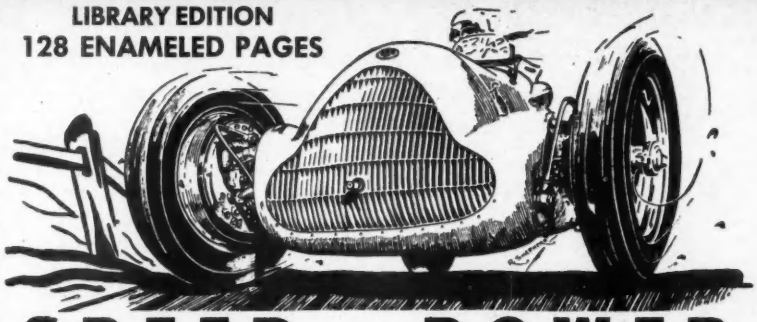

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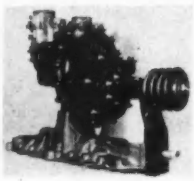

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MOTOR TREND INDEX

Complete Index of Articles from Sept. '49 to Dec. '50

NOTE: This index is a compilation of articles which have appeared in issues of MOTOR TREND from Sept. '49 through Dec. '50. It is being presented as a convenience for readers who may have missed an article in which they are particularly interested. It will be noted that the articles have been placed under specific categories for easier reference, and the names of same are not necessarily the titles of the articles. This index does not include such regular monthly features as "Spotlight on Detroit," "Tendance Continentale," and "Sporting Scene"; however, the most important cars and items from these have been listed under their particular category.—Editor

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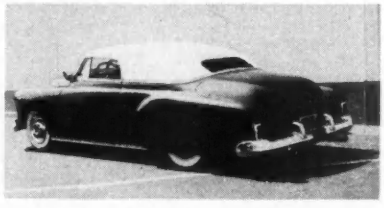
COVER CHEVY

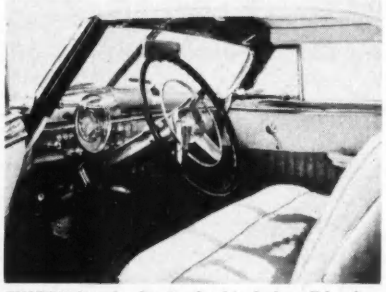
PHOTOGRAPHS BY FELIX ZELENKA

NOTE—After using photos of three custom Chevys on the cover of the December 1950 issue and only describing two of them inside, we received several requests for the information about the third car. Here it is. —Editor

OWNER of this Barris Kustom (a '49 Chevy convertible) is Carl Abajain, Bell, Calif. Color is a blue chromatic to set off the bone white top (by Gaylord). Car has been frame channeled 10 ins.; coil springs were cut to lower front. Grille is '49 Cad, split, cut and shaped to fit Chevy hood. Front bumper is '49 Buick



EVERYTHING is completely pushbutton-operated—doors, hood and deck. Rear fenders were power hammered out and built up considerably higher. Tail lights are from a '50 Chrysler. Rear bumper is from a '49 Oldsmobile



CUSTOM interior by Gaylord includes all-leather top, seat, door panels. Color, blue and white

Harnessed Dynamite

(Continued from page fifteen)

of the middle thirties, for instance, put out 95 bhp at 3200 rpm unblown, and with supercharger developed 135 bhp at 4000 rpm. This made the Graham one of the best performing cars of its time.

The characteristics of the centrifugal blower make it popular for aircraft use, and in this application it is often coupled to a turbine driven by the engine's exhaust gas. The only exhaust driven supercharger for automobiles known to the writer was the Besasie conversion for Chevrolets which was on the market a few years ago.

Next month we will discuss in detail the many interesting types of positive displacement blowers. This group is ideally suited to automotive use, and offers great promise for high efficiency engines of the future.

Detroit Second Annual

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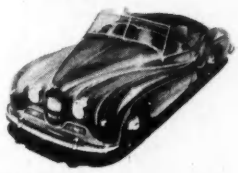

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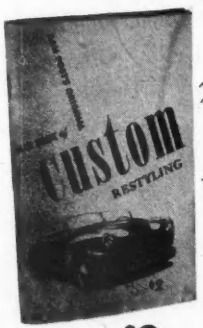

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The Big Fifth

(Continued from page sixteen)

DRAWINGS BY M. R. RIGGS

Dayton and incorporated ignition, side and tail lights, horns, signal lights, cigar lighter, magnetic clutch and electric starter!

A new era in automotive metallurgy was inaugurated in the winter when Henry Ford, racing at Ormond Beach, Florida, picked up a piece of metal from a wrecked French racer. Ford was so impressed with the possibilities of this vanadium steel that he pioneered its use in this country. Warner furnished the first magnetic speedometer and the Gabriel tubular exhaust horn was put on the market.

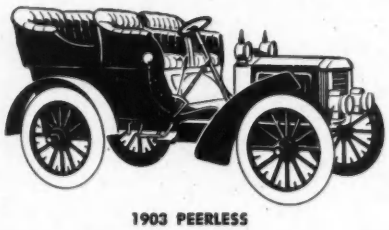
In 1906 the Haynes came out with the first free-wheeling device, a three-pronged ratchet that worked on first and second gear only. Since it included no method of locking it out, it was unsuccessful and was discontinued after a year.

A new approach to automotive design was the Auto-Buggy, a standard four-wheel buggy with the engine riding, propelling and steering on a two-wheel rig ahead. The manufacturer advertised a better ride since the buggy springs supported only the weight of the body and passengers.

Buick introduced a storage battery as standard equipment and Adams-Farwell showed three- and five-cyl. rotary engines, which never caught on for cars, even though they were later used on aircraft.

In 1907 the first front wheel brake was patented in the U. S. Olds made friends of motorists tired of polishing brass by introducing nickel plating. The multiple disc clutch was announced this year, and began to replace the cone clutch, which was very popular, judged by numbers in use—unpopular, judged by its faults.

The acetylene generator became generally


1903 PEERLESS

used just as V. C. Apple persuaded General Electric to make a pair of six-volt tungsten bulbs for experimental purposes. A revolutionary material was developed by Dr. L. H. Baekeland; he named it Bakelite, little realizing that it was destined for a major role in automotive electrical systems.

This year the A.L.A.M. adopted an English formula for calculating horsepower. That formula, $HP = \frac{D^2N}{2.5}$ may have been accurate then, but today with higher engine speeds, lower friction losses, and higher compression ratios, the actual horsepower is nearly triple the formula result. Even so, many states rushed to incorporate it in state licensing laws, so today the "taxable horsepower," that elusive and incorrect figure, is still computed the same way.

The year 1908 was a year of significance which will probably never be repeated—Ford brought out the Model T. The whole world is familiar with this symbol of mass production. Since many books have been written about this unnatural, sometimes almost mystic entity, only a few points will be mentioned here. C. Harold Wills developed the use of vanadium steel, used in American cars for the first time in the "T's" front axle, springs and gears. Besides the planetary transmission which was used by many other cars, the "T" also used planetary gearing in the

1906 STODDARD-DAYTON

steering wheel hub. This arrangement was also on the Chevrolet Four and the Overland.

Franklin was going strong and announced their Type G with 16 hp, four cyl., air-cooled engine. Their engine was smaller, the catalog stated, "because it works at the temperature of highest efficiency, 350° or more." This, they claimed, was the reason for their victory in the Great Efficiency Test, where the Franklin did 95 miles on the allotted two gallons, while "the nearest water-cooled engine stopped at 48 miles."

The first Oakland was produced. The engine seemed to say that the designer didn't want to be beholden to anybody! It was a two cyl. vertical engine with the pistons moving up and down in unison. A separate shaft, parallel to the crankshaft and rotating in the opposite direction at the same speed carried the counterbalance. And to cap it all, the cylinder heads were screwed on. This arrangement did not initiate any long term trends.

Progress in two directions was marked by the advent of F. H. Lovell's motor driven Klaxon horn and wide use of silent timing chains. Klaxon, from the Greek "klaxo," meaning to shriek, affected electrical systems as well as pedestrians. Magnetos were becoming perfected, both Remy and U. & H. turning out refined models this year, but the Klaxon required a battery, and as its popularity spread, batteries became more widely used also.

Frank Seiberling perfected his treaded tire building machine and made it available to all. Another inventor, F. W. Gurney, had a more difficult time. He invented a radial-thrust bearing, but since the Germans, who at that time dominated the bearing industry, said it was impossible, few Americans would listen to him.

The first Hupmobile came out this year. One of its features was quite novel: controlled gravity lubrication. The wider the throttle was opened, the more oil flowed down from the oil tank on the theory that the faster an engine, the more oil it needed.

The first Chalmers-Detroit appeared with four novel features: an arrangement whereby overrun on the clutch pedal applied a brake to the transmission; two ignition circuits complete with two sets of plugs; an enclosed driveshaft within a steel shaft; and emergency brakes with metal to metal contact.

The Indiana Piston Ring Company was the first to make rings by the pot casting method and this same year the banjo-type, built up rear axle housing was perfected, resulting in a stiffer and lighter rear axle.

This was a year when four door bodies gained in popularity, electric headlights first appeared, the cellular radiator was replacing the tubular, most cars were using high tension ignition, selective gearsets were replacing the progressive gearset, and the multiple disc clutch's popularity had grown to equal that of the cone clutch. But many new features were yet to be introduced in the second decade of the 20th Century: direct gearshift lever, electrical pre-selective gearshift, headlights on the front fenders, four-wheel brakes and many more. The automotive industry was just getting into high gear.

NOTE: A further installment on the evolution of the automotive industry will appear in the February issue of MOTOR TREND.

Polishes

(*Continued from page twenty-six*)

Diatomaceous earth, the fossilized remains of 60 million-year-old fish, will break down under mild pressure—hence it is used where mild abrasive is called for. Tripoli, a friable silica, is used for heavy work because it does not crumble so easily. Most commercial passenger-car preparations contain little, if any, tripoli. New cars, painted at the factory, still have a soft surface and tripoli will take the gloss away from a soft finish. The manufacturers, aware that many new-car buyers apply a coat of wax before they drive the first 100 miles, recommend mild cleaners. After the car has been in use for a year or more, a mild cleaner is inadequate.

When you buy a cleaner, *make sure it is intended for a painted surface.* Heavy-duty cleaners for metals are compounded with grainy abrasives that will scratch paint. To apply the cleaner, use a liberal amount on the rag and use heavy pressure. Stand beside the car, put both hands on the rag and lean on it. This way, a few strokes will get all the dirt and your finish will gleam. That is one test of a clean surface—it should gleam almost like a polished car. Another test can be made by twisting a dry rag on the dry, clean surface and listening for a squeak. If the surface appears cloudy, or slippery, or sticky, clean it again. These tests do not apply when you are using a combination cleaner-polish.

When the surface is clean the worst part of the job is done. Modern paste waxes are no longer difficult to apply. But please read and follow the manufacturer's directions carefully. New materials and new methods of mixing have revolutionized the old-fashioned buffing techniques.

In the early days, it was necessary first to spread the wax evenly by rubbing hard, and then to bear down even harder to bring out the gloss. New solvents and plasticizers have taken over the first part of the task completely. Take Mac's-It for example. The operator need only spread the wax lightly and it flows into all the tiny cavities of the paint surface, forming a perfect, even seal. When the wax has been spread, the solvents come to the top where a light wipe will remove them completely, leaving the coating ingredients on the car. Already, thanks to the perfect smoothness of the flow-on, a high gloss has been obtained. Just a few more light strokes are required to bring it to perfection. But if you make the fatal error of rubbing hard on your first stroke, the improved solvents are perfectly capable of picking up the wax they've just laid on so carefully for you.

There is more than one brand of good paste wax on the market. Manufacturers test their competitors' products carefully and rather grudgingly admit that many emerge from the tests with honor. One simple test, used on liquid polishes, can be performed at home. A pint can of the product is poured into a glass jar and allowed to settle out. All solids will eventually sink and, since waxes and resins are solids, this gives a good indication of the coating content of the product. One recent, highly-touted liquid polish proved less than adequate under this test—it contained a piece of wax the size of a pea plus silicone liquid in solution.

The only other reliable home test is to use the product and observe the results. Don't judge by immediate results, however. Wait and see how long the protective surface lasts. The first test of quality is durability.

And don't kill yourself working on the theory that the only good polishes are the ones that require a full day to apply. That just isn't true anymore. Once the car is *clean*, the rest is easy.

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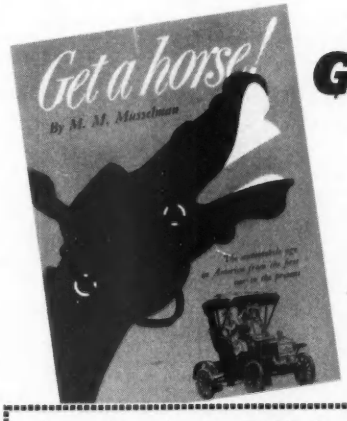

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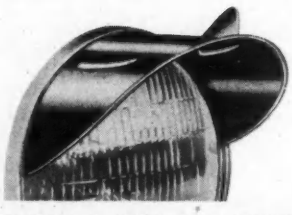

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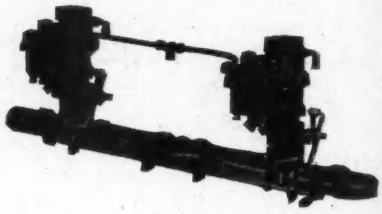
A NEW TWIST IS AN ACCESSORY THAT CONVERTS A CONVERTIBLE TO A HARDTOP. When foul weather brews, the convertible owner simply lowers his car's top, places the boot in position and installs the Add-A-Top (see photo). The attachment requires no holes or other alterations. Add-A-Top is formed of high-strength, heat-resisting composition and employs a wrap-around window. The Add-A-Top Corporation, Detroit, Michigan, has introduced the Add-A-Top for late model Ford convertibles and production is ready to begin for most other popular models.

NASH AMBASSADOR AND CROSLEY OWNERS WANTING MORE PERFORMANCE can get it by getting in touch with Newhouse Automotive Industries (Los Angeles, Calif.). This company is now making a dual manifold for Nash Ambassadors, to sell for $29.95 complete. Racing parts for Crosley include a manifold, large capacity oil pan, and thick aluminum valve cover.



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A NEW UNIT THAT ELIMINATES THE USE OF A MUFFLER has recently been introduced by Perry's Auto Repairs, Inc., New York, N.Y. When using this unit, the muffler is removed, and a straight pipe is installed. Eighteen inches is then removed from the end of the tail pipe and Penny's Silencer (a three-way aluminum casting) is fastened into position. The center tube has a controllable spring valve that permits the owner to open the silencer and have a straight exhaust. Available for stock production and sports cars at $32.50.

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A NEW COMBINATION CARBURETOR IDLING PIN AND MOISTURE FILLED VACUUM CONTAINER for the purpose of giving more miles per gallon and a smoother running engine has recently been announced by the Speed Specialty Company of Los Angeles, Calif. The Jet Master Sav-T-Pin is attached to the carburetor and replaces the conventional idling pin. Filtered air is drawn through the vacuum sealed container, filled with a chemical compound of high moisture content. Moisturized air is then fed to the carburetor through the idling pin. According to the manufacturer, on actual tests on all makes and ages of cars, the Jet Master Sav-T-Pin has given from one to four mpg over conventional idling pins. The unit is available for six- and eight-cylinder engines.

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IN AN ATTEMPT TO REDUCE A NUMBER OF ACCIDENTS, the Accela-Brake Sales Co. (Hollywood, Calif.) has developed the Accela-Brake, an application of vacuum booster principles used on truck brakes. It fits over the accelerator and is activated by a slight pressure of your heel; brakes are automatically released when the accelerator is again depressed. By reducing the time lag in lifting your foot from the accelerator and hitting the standard brake pedal, Accela-Brake Sales Co. claims a 50 per cent shorter stopping distance. The brake unit is connected to hydraulic brake system between master cylinder and wheels. It does not interfere with use of standard pedal or emergency brake, and may be disconnected by pulling out a button on the dash.

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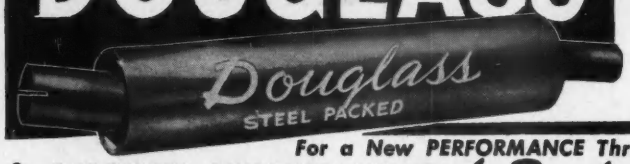

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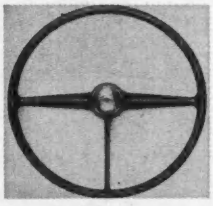

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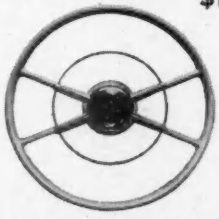

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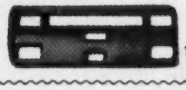

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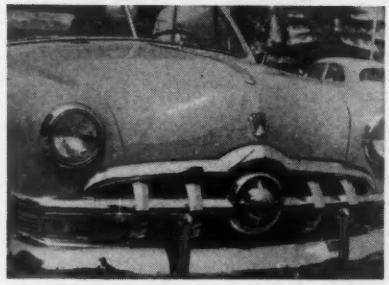

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